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November 21, 2023

Mr. Marsel Fakhrutdinov, P.E.
Miami-Dade County Department of Regulatory and Economic Resources
Environmental Resources Management
Water Control Section
701 NW 1st Court, 6th Floor
Miami, FL 33136-3912

Subject: **FPL Miami-Dade Clean Water Recovery Center (CWRC) Waterline Phase 2B (42-inch Pipeline from Survey Station 00+00 to 43+00)**
Turkey Point Conditions of Certification (PA03-45G)
Post-Certification Submittal for Dewatering Compliance Determination

Dear Mr. Fakhrutdinov,

On behalf of Giannetti Contracting Corp., Tierra Group proposes a dewatering plan to support pipeline installation between project survey station STA 00+00 (Latitude 25°32'56.98" North/Longitude 80°20'47.03" West) and project survey station STA 43+00 (Latitude 25°32'15.15" North/Longitude 80°20'50.65" West) in Miami-Dade County, Florida.

1.0 Project Description

Dewatering is necessary to install the northernmost portion of a 42" subsurface pipeline for reclaimed water in Miami-Dade County. This application addresses the final phase of the project (Phase 2B) between the South District Wastewater Treatment Plant (SDWWTP) and Old South Dade Landfill. The remainder of the project was addressed under separate cover as Phase 1 and Phase 2A, approved on April 24, 2023, and October 30, 2023, respectively. The project location is shown on **Figure 1**.

Trenching begins at Survey Station 00+00, where open trench runs 85 feet southwest to Station 00+85, to a directional bore extending south-southwest beneath the C-1 Canal, resurfacing at Station 10+05. From Station 10+05, open trench continues south for 3,300 feet along SW 97th Avenue to Station 43+00.

The total excavated trench length is approximately 3,385 feet across eighty-seven trench sections. The pipeline will be placed within approximately 8.0-foot wide by 40-foot-long linear trench segments, and three sections are planned for completion each day. The site plan and dewatering locations with subsurface profiles are shown in FPL Site Drawings *Miami-Dade Clean Water Recovery Center, Offsite 42" Reuse Pipeline – SDWWTP to Turkey Point, Drawing Numbers 3610 through 3615,* annotated by Tierra Group and included as **Figure 2**.

2.0 Estimation of the Dewatering Radius of Influence & Maximum Flow Rate

Tierra Group used Sichardt's Equation to calculate the dewatering groundwater volume for the project based on site-specific hydraulic conductivity referenced from *Geotechnical Data Report, Miami-Dade Clean Water Recovery Center Pipeline*, prepared September 2023 by Blascom Engineering, Inc. The K-value (EX-5) applied to sections S-1 through S-48 is 106.27 feet/day.

The K-value (EX-4) applied to sections S-49 through S-87 is 110.59 feet/day. Aquifer depth (H = 150 feet) was referenced from *United States Geological Survey: Water-Resources Investigations Report 90-4108, Hydrogeology of the Surficial Aquifer System, Dade County, Florida, 1991*. Select pages of the referenced documents are provided in **Attachment A**.

The calculated maximum radius of influence (ROI) and dewatering flow rate are 416 feet and 960 gallons per minute (gpm), respectively. The estimated maximum daily dewatering pumpage calculated using Sichardt's Equation is 345,621 gallons per day for the proposed production rate of three (3) sections per day. The variables and supporting calculations for these values are provided in **Attachment A**.

3.0 Contaminated Facilities File Review

Environmental records from the Florida Department of Environmental Protection (FDEP) and Miami-Dade County Department of Regulatory and Economic Resources (RER) indicated that two contaminated facilities are within 500 feet of proposed trenching activities, as shown in **Figure 3**.

Facility Name	Address	Facility Type	Pollutant Type	Regulatory Status	Facility ID
South Dade Landfill	SW 97th Ave. & SW 237th Street Homestead, FL 33032	Landfill	Ammonia, Chlorides, Metals, Nitrate, and TDS	Ongoing semi-annual monitoring	MDC ID#: SW-01013
Old South Dade Landfill	SW 97th Ave. & SW 248th St. Homestead, FL 33032	Landfill	Ammonia, Chlorides, Metals, Nitrate, and TDS	Monitoring suspended pending no changes to adjacent properties	MDC ID#: SW-01325

South Dade Landfill (MDC ID# SW-01013)

The South Dade Landfill (SDL), a 320-acre Class I Municipal Solid Waste facility owned and operated by Miami-Dade County, receives approximately 960 tons of solid waste per day. It is in coastal Miami-Dade County, approximately 12 miles northeast of Homestead and 20 miles south of Miami.

The SDL disposal area consists of five zones, designated as Cell 1 through Cell 5. Cells 1 and 2 cover a combined 92 acres and were active between 1978 and 1988; closure activities were completed in August 1997. Cell 3 covers 46 acres and was active from 1986 to 2008; closure activities were completed in February 2011. Cell 4, constructed in 1994, covers approximately 60 acres. It began accepting waste in 2003 and is currently active. Cell 5 was graded to form five separate sub-cells (Cells 5A through 5E) from south to north. Construction of Cell 5 was completed in 2021; sub-cell 5E began receiving solid waste in July 2021.

The SDL's FDEP Solid Waste Permits (*0126800-010-SC* and *0126800-011-SO*) include requirements for ongoing water quality monitoring and semi-annual reporting. A total of 63 clustered wells of varied depth intervals are installed throughout the site, as shown in **Figure 3**. Each cluster is measured for field parameters including turbidity, dissolved oxygen, specific conductivity, temperature, color or sheen, and pH. Samples are further analyzed by a contract laboratory for total dissolved solids (TDS), nitrate, chlorides, and ammonia.

According to the *Second 2023 Semiannual Water Quality Monitoring Report and 2021-2023 Technical Report on Water Quality*, prepared October 12, 2023, by SCS Engineers, analytical results appear consistent with previous monitoring reports. TDS, sodium, and chloride are elevated and likely due to the site's proximity to the marine waters of Biscayne Bay. Most metals are reported below laboratory method detection limits. Applicable pages of the regulatory file documents are included in **Attachment B**.

Based on proximity of the project route to SDL monitoring wells S-1 (10'/15'/60') and S-21 (15'/30'/60'), Best Management Practices (BMPs) will be observed at the dewatering site to ensure protection of the existing monitoring wells, including installing temporary barriers around the wells to prevent accidental damage. Monitoring well locations relative to the pipeline route are shown in **Attachment C**.

Old South Dade Landfill (MDC ID# SW-01325)

Landfill operations began at the Old South Dade Landfill (OSDL) as early as 1952. The old landfill tract constitutes approximately 300 acres. The eastern-most portion of the tract, roughly 40 acres, reportedly did not receive waste materials and remains covered by mangrove vegetation. Waste materials were disposed of in open trenches below the water table, and the solid waste ranged from 6 to 8 feet thick east of SW 97th Avenue, to about 15 feet thick to the west. Operations ceased in 1979, when the landfill was closed.

The Miami-Dade County Department of Public Works and Waste Management completed closure enhancement activities at the OSDL in 2014. These activities consisted of wetland restoration, clearing and grading, relocation of waste, placement of a lime rock cap over relocated landfill material, and installation of stormwater management, groundwater extraction, treatment, injection, and monitoring systems. Extracted groundwater was piped to a sequencing batch reactor (SBR) treatment plant, where impacted groundwater was treated to meet the Miami-Dade County groundwater standard for ammonia. Treated groundwater was then piped to gravity drainage wells on the east side of the OSDL.

In addition to sampling from the effluent tank of the SBR, a network of thirty-eight monitoring wells were installed and sampled to track contaminants of concern. All samples were within the required range for field pH; TDS and chlorides were above maximum contaminant levels (MCLs) in most samples. Chlorides were below the MCL in 6 of the 38 wells sampled. Nitrate was below its MCL in all wells sampled. Ammonia ranged between <0.04 milligrams per liter (mg/L) and 17.6 mg/L, which exceeds the Groundwater Cleanup Target Level (GCTL) of 2.8 mg/L, as provided by Chapter 62-777, Florida Administrative Code (F.A.C.). All metals except iron, sodium, lead, and thallium were below their respective MCLs. Antimony, beryllium, cadmium, cobalt, nickel, selenium, silver, thallium, and mercury were below the laboratory method detection limit in all wells tested.

In April 2015, Miami-Dade County Department of Public Works and Waste Management submitted a Site Rehabilitation Completion Report (SRCR), included in **Attachment B**, to FDEP demonstrating that remediation goals had been achieved and ammonia concentrations at perimeter monitoring wells were below the GCTL. Miami-Dade County requested that groundwater pumping, treatment, reinjection, and monitoring requirements be discontinued. In July 2015, FDEP issued a Permit Modification, which no longer required remediation and monitoring activities at the facility.

Quarterly perimeter monitoring for methane gas began in 2014; no gas migration was detected, and monitoring was suspended by 2019. Applicable pages of the regulatory file documents are included in **Attachment B**.

4.0 Dewatering Plan

Ground surface elevation at the proposed dewatering site varies with a maximum elevation of +9.0 feet relative to the North American Vertical Datum of 1988 (NAVD). Average groundwater elevation at the dewatering site is +0.48 feet NAVD, and the maximum trench dewatering depth is -6.5 feet NAVD. Per Miami-Dade County DERM review correspondence dated September 12, 2023, regarding Tierra Group's dewatering plan submittal, the pipeline installation will be completed partially "in the wet" to reduce drawdown volume, dewatering flow rate, and radius of influence.

Dewatering fluids will be pumped from the excavation trenches using a self-priming six-inch (6") pump, or equivalent, through an 18,000-gallon sedimentation weir tank prior to pumping into an existing 8" sanitary sewer connection to the 54-inch force main, as shown in **Figure 4**. The existing 54" sewer force main is used to convey raw wastewater to the South District Wastewater Treatment Plant (SDWWTP) headworks for treatment. An 8" x 8" tee will be cut into the pipe and a check valve will be installed upstream to ensure proper flow. An additional check valve will be connected to the dewatering discharge piping to prevent backflow from the sewer connection toward the dewatering pumps.

Materials used for backfilling pipeline trenches will incorporate local virgin quarried #57 rock as a uniform bed upon which pipe segments will be placed. The balance of the trench voids along the sides and on top of newly placed pipe will be filled with native substrates removed from its immediate vicinity at equivalent depth intervals.

Dewatering assumptions are based on the time to dig, dewater, and install subsurface infrastructure during daylight working hours. Dewatering duration for this portion of the pipeline project is estimated at ten (10) hours per day for thirty-six (36) working days based on a production rate of 120 linear feet per day. A 1.25 factor of safety has been added to account for weather delays, equipment breakdowns, and other unforeseen circumstances.

4.1 Soil and Sediment Management Plan

Excavated soil from open trenches will be segregated to ensure compliance. Upon completion of pipeline section installation, stockpiled soil will be returned to the trenches as backfill. Excess soil will be properly disposed of off-site.

Dewatering fluids will be processed through a sedimentation weir tank to allow sediment settling prior to discharge. Multi-round bag filters will be deployed, as necessary, to meet Miami-Dade County Code turbidity pretreatment standards. Accumulated sediment removed from the tank will be properly disposed of off-site. Particle settling calculations are included in **Attachment A**. Pump and sedimentation tank specification data are included in **Attachment D**.

4.2 Stormwater Management

The intent is to pump dewatering effluent from excavation trenches into a sedimentation weir tank, from which it will be pumped into an existing force main that flows to the influent of the SDWWTP.

The project has developed a SWPPP in accordance with the provisions of *F.A.C. Section 62-621.300(4)*, which is included in **Attachment E**. Silt fencing and other stormwater management features are detailed in the SWPPP. Best Management Practices (BMPs) to control sedimentation and stormwater pollution runoff will be observed during dewatering operations. Existing catch basins and accessible drainage entry points at the site will be protected with curb barriers, including hay bales wrapped in silt filter fabric and/or booms, to deter sediment in stormwater from entry into the existing roadway drainage system.

Temporary grade changes and surface flow restrictions will occur during the project but no grading work that permanently changes existing grade or surface drainage flow will be performed. No discharge to surface waters will occur, therefore the provisions of *F.A.C. Section 62-621.300 – Permits*, are not applicable.

5.0 Authorization to Perform Work

Wetland impacts associated with the project are authorized via USACE Permit SAJ-2004-00813. Additionally, the Site Certification (PA 03-45G) serves as comprehensive state and local agency approval for the project. Select pages of PA 03-45G are included in **Attachment F**.

Regarding the discharge of dewatering fluids to the sanitary sewer system, Mr. James Ferguson, Assistant Director of the Miami-Dade County Water and Sewer Department, consented to this plan in an email dated October 24, 2023, a copy of which is included in **Attachment F**. Dewatering fluids will be managed in accordance with the approval requirements for dewatering discharge set forth by Miami-Dade County Water and Sewer Department.

6.0 Conclusion

The proposed dewatering activities are necessary to lower natural groundwater elevation to support the installation of a reclaimed water pipeline between project survey station STA 00+00 and project survey station STA 43+00 in Miami-Dade County, Florida. The installation is required to provide a primary source of cooling water for the FPL natural gas power plant at Turkey Point.

Tierra Group concludes the project, with maximum ROI of 416 feet, maximum flow rate of 960 gpm, and maximum daily pumpage of 345,621 gallons/day, is temporary in nature and not expected to adversely impact the shallow groundwater aquifer.

Contact information for the entity assuming responsibility for the conditions of the permit is:

Giannetti Contracting Corp.
Attn: Ilia Lyssenko
1801 NW 18th Street
Pompano Beach, FL 33069
Ilia@giannetticorp.com

If additional information is required to expedite the review and approval of dewatering activities, please contact Scott Zednek or Laurie Sheldon at (954) 202-9226 with any questions.

Respectfully,

Robert L Vinson III
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Date: 2023.11.21 14:31:44 -07'00'

Robert L. Vinson III, P.E.
Senior Project Engineer

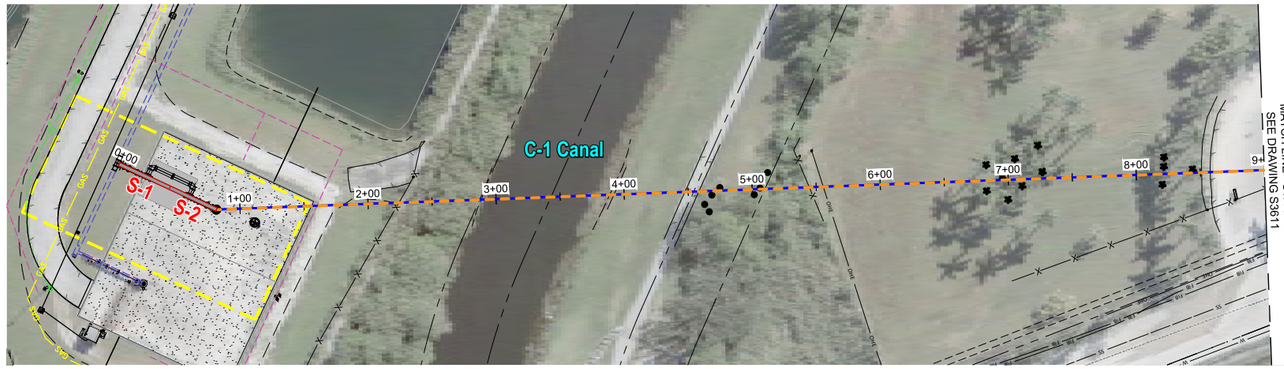
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FIGURES



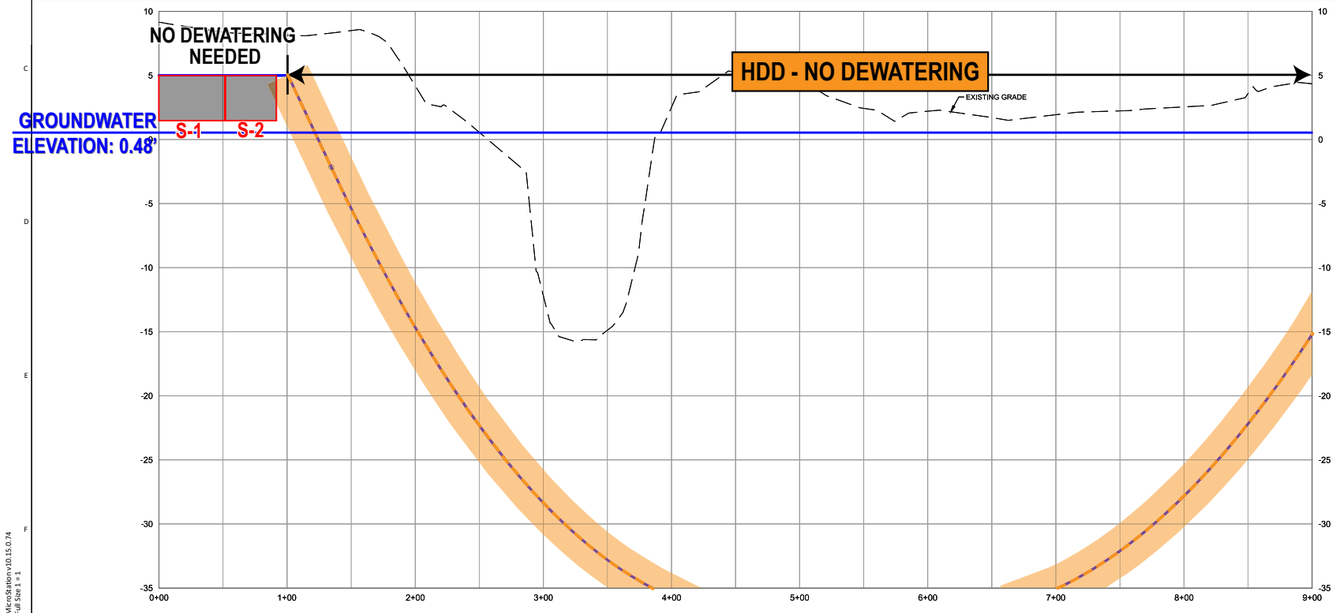
TIERRA GROUP™ Assured Geoscience Solutions	PROJECT: FPL MIAMI-DADE CLEAN WATER RECOVERY CENTER PIPELINE, PHASE 2B		CLIENT: GIANNETTI CONTRACTING CORP.	
	FIGURE 1 - PROJECT LOCATION MAP	SCALE: APPROX. 1" = 0.5 Mile 0' 1,320' 2,640'	DATE: 11/7/2023	DRAWN BY: LS

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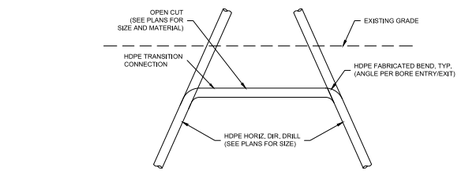
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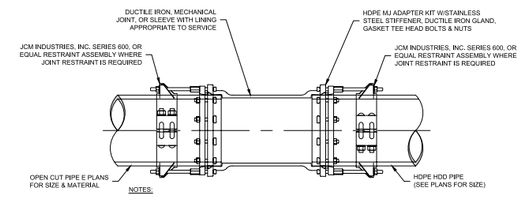
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PROJECT LOCATION MAP



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NOTES:

1. PROVIDE JOINT RESTRAINT IF SLEEVE IS IN ZONE REQUIRING RESTRAINED JOINTS.
2. PROVIDE JOINT RESTRAINT WHERE SHOWN ON PLANS.

HDPE TRANSITION CONNECTION

HDD CONNECTION DETAIL

Know what's below. Call before you dig.

PROJECT GENERAL NOTES: Maximum Daily Pumpage: 345,621 US Gallons/day Maximum Dewatering Depth: -6.5' NAVD

DEWATERING SAFETY NOTE: FINAL PLACEMENT OF TEMPORARY WEIR TANKS, WELLS, PUMP SYSTEM, AND HOSE ROUTING IS ALWAYS SUBJECT TO UTILITY CONFLICT AND SUBSURFACE GEOLOGY. LOCATE/SOFT DIGGING ARE REQUIRED TO ENSURE SAFE INSTALLATION AND OPERATION OF SYSTEM AND COMPLIANCE WITH OTHER SITE SAFETY CONSIDERATIONS.

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PROJECT: FPL MIAMI-DADE CLEAN WATER RECOVERY CENTER PIPELINE, PHASE 2B		CLIENT: GIANNETTI CONTRACTING CORP.	
FIGURE 2 - DEWATERING PLAN	PROJECT NO. 18374-2B	DRAWN BY: LS 11/20/23	SHEET 1 OF 6

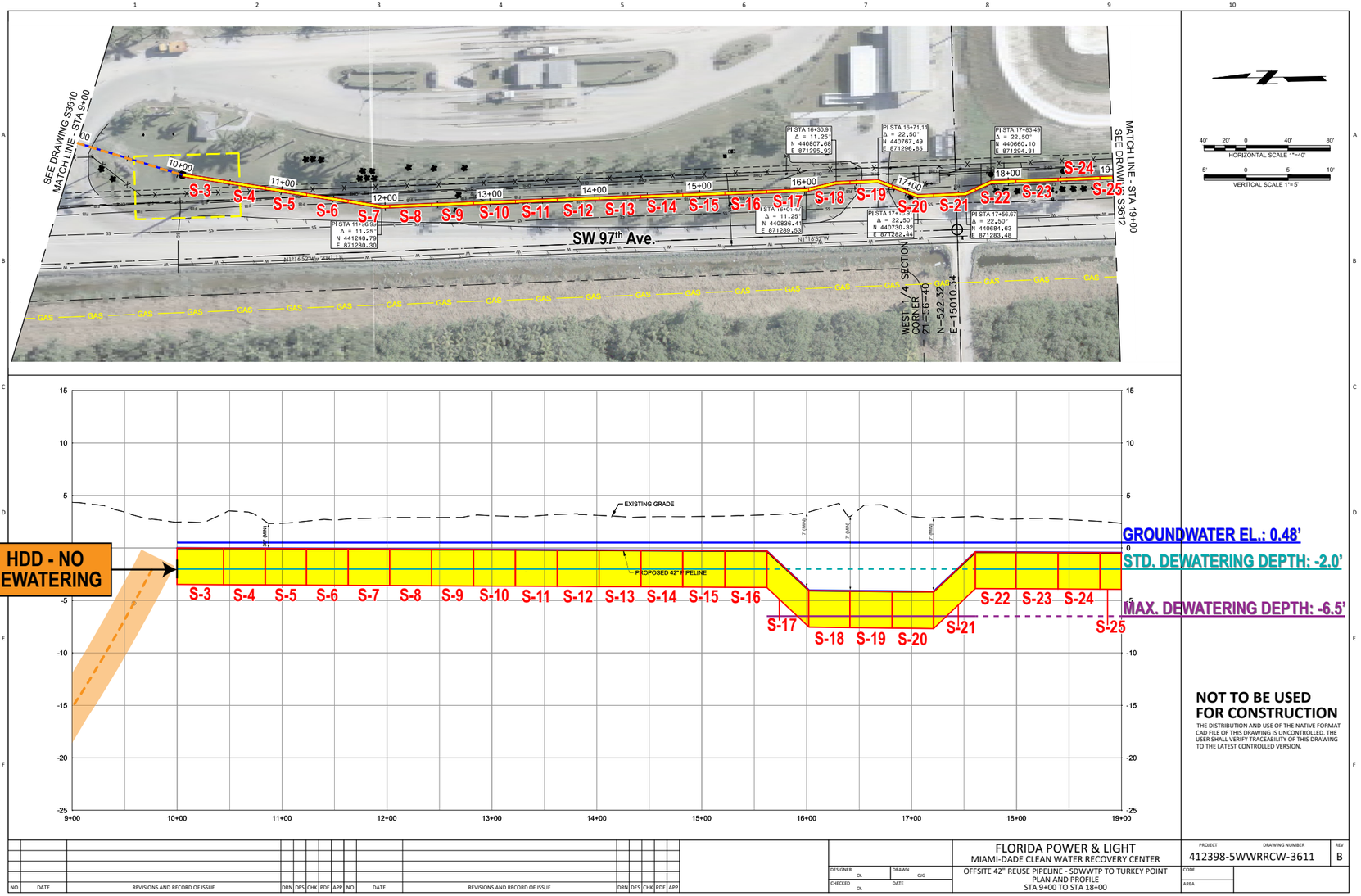
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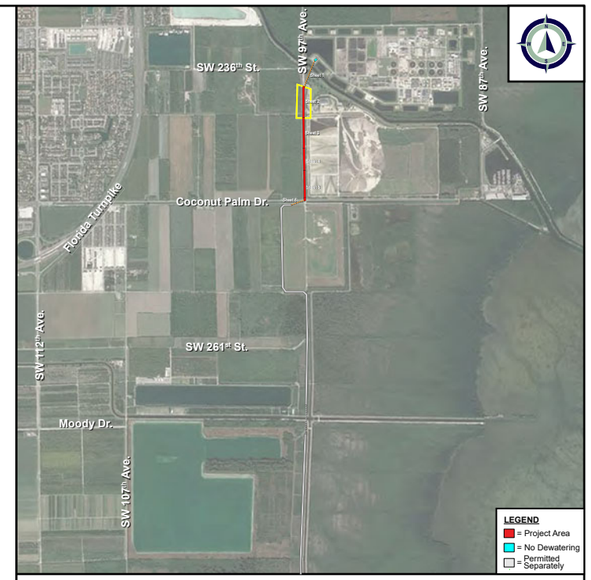
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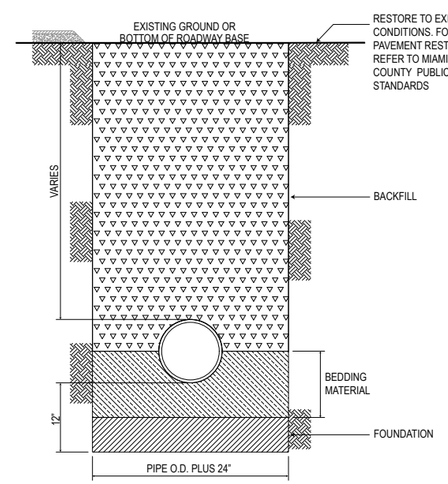
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MIAMI-DADE CLEAN WATER RECOVERY CENTER
OFFSITE 42" REUSE PIPELINE - SDWWTP TO TURKEY POINT
PLAN AND PROFILE
STA 9+00 TO STA 18+00

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PROJECT LOCATION MAP



TYPICAL TRENCH DETAIL

PROJECT GENERAL NOTES: Maximum Daily Pumpage: 345,621 US Gallons/day Maximum Dewatering Depth: -6.5' NAVD

DEWATERING SAFETY NOTE: FINAL PLACEMENT OF TEMPORARY WEIR TANKS, WELLS, PUMP SYSTEM, AND HOSE ROUTING IS ALWAYS SUBJECT TO UTILITY CONFLICT AND SUBSURFACE GEOLOGY. LOCATE/SOFT DIGGING ARE REQUIRED TO ENSURE SAFE INSTALLATION AND OPERATION OF SYSTEM AND COMPLIANCE WITH OTHER SITE SAFETY CONSIDERATIONS.

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FIGURE 2 - DEWATERING PLAN	PROJECT NO. 18374-2B	DRAWN BY: LS 11/20/23	SHEET 2 OF 6

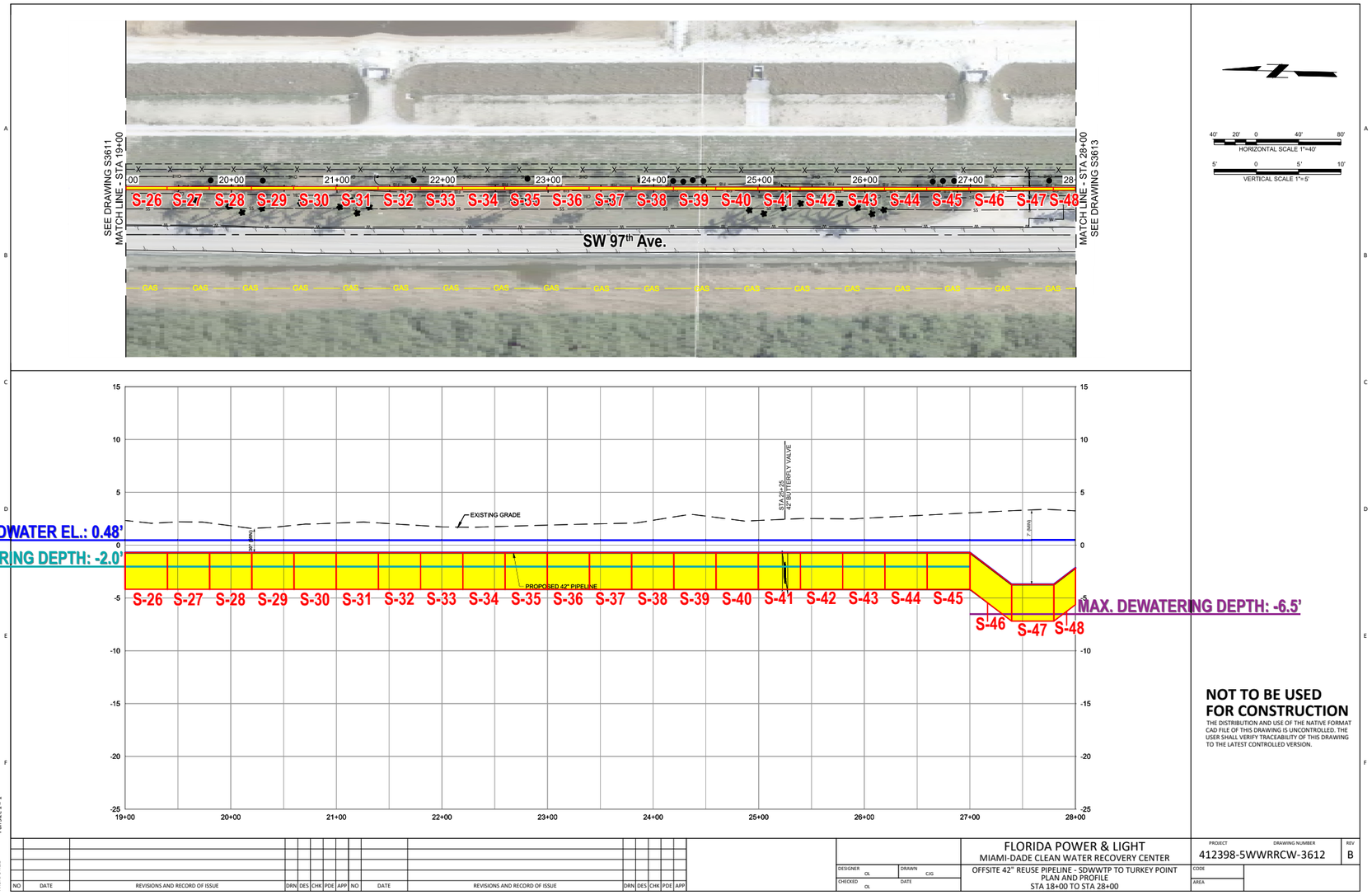
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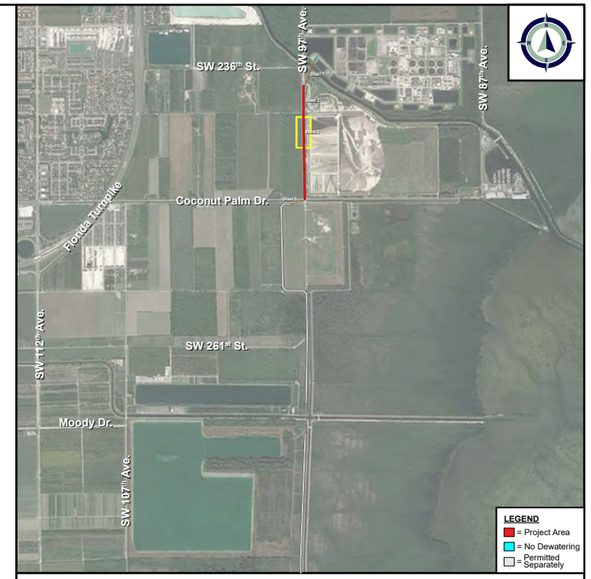
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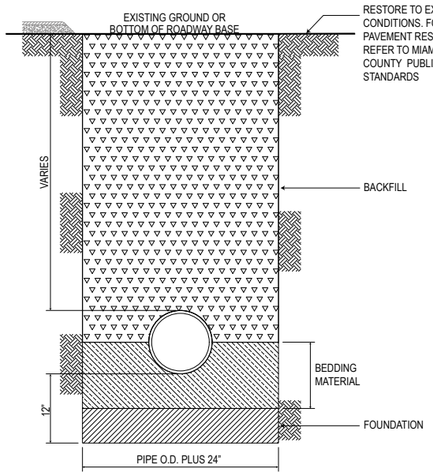
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MIAMI-DADE CLEAN WATER RECOVERY CENTER
OFFSITE 42" REUSE PIPELINE - SDWWTP TO TURKEY POINT
PLAN AND PROFILE
STA 18+00 TO STA 28+00

PROJECT 412398-5WWRRCW-3612 | DRAWING NUMBER | REV B
CODE | AREA



PROJECT LOCATION MAP



TYPICAL TRENCH DETAIL

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PROJECT GENERAL NOTES: Maximum Daily Pumpage: 345,621 US Gallons/day Maximum Dewatering Depth: -6.5' NAVD

DEWATERING SAFETY NOTE: FINAL PLACEMENT OF TEMPORARY WEIR TANKS, WELLS, PUMP SYSTEM, AND HOSE ROUTING IS ALWAYS SUBJECT TO UTILITY CONFLICT AND SUBSURFACE GEOLOGY. LOCATE/SOFT DIGGING ARE REQUIRED TO ENSURE SAFE INSTALLATION AND OPERATION OF SYSTEM AND COMPLIANCE WITH OTHER SITE SAFETY CONSIDERATIONS.

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PROJECT: FPL MIAMI-DADE CLEAN WATER RECOVERY CENTER PIPELINE, PHASE 2B		CLIENT: GIANNETTI CONTRACTING CORP.	
FIGURE 2 - DEWATERING PLAN	PROJECT NO. 18374-2B	DRAWN BY: LS 11/20/23	SHEET 3 OF 6

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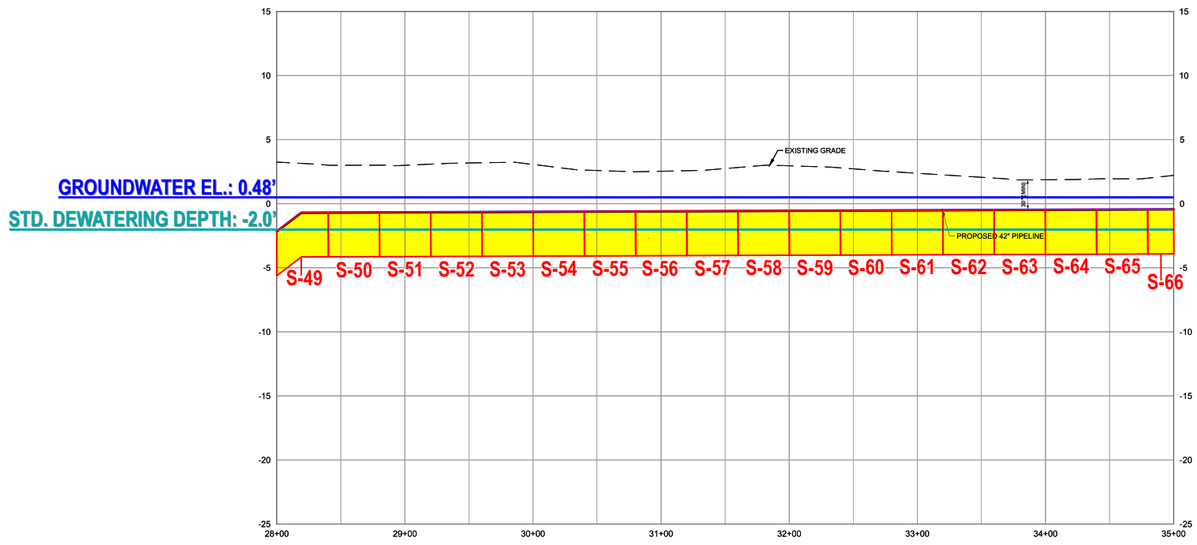
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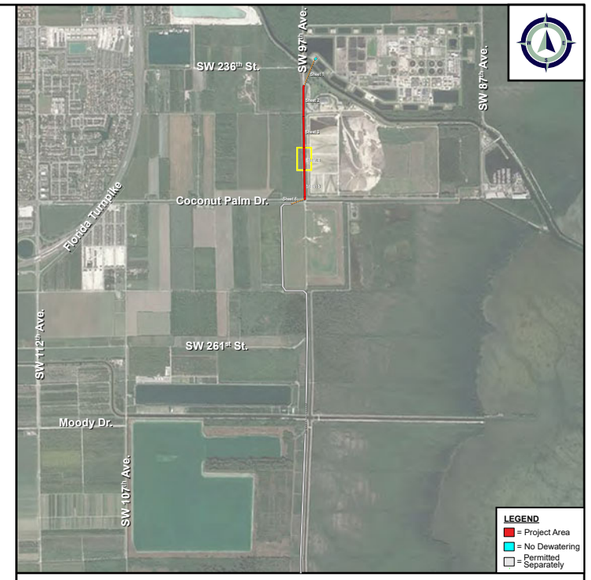
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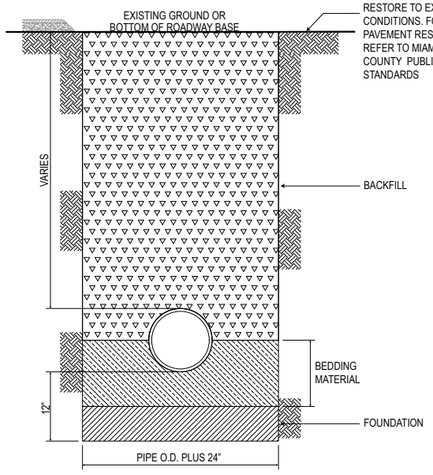
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OFFSITE 42" REUSE PIPELINE - SDWWTP TO TURKEY POINT
PLAN AND PROFILE
STA 28+00 TO STA 35+00

PROJECT	DRAWING NUMBER	REV
412398-5WWRRCW-3613		B
CODE		
AREA		



PROJECT LOCATION MAP



TYPICAL TRENCH DETAIL

PROJECT GENERAL NOTES: Maximum Daily Pumpage: 345,621 US Gallons/day Maximum Dewatering Depth: -6.5' NAVD

811 Know what's below. Call before you dig.

DEWATERING SAFETY NOTE: FINAL PLACEMENT OF TEMPORARY WEIR TANKS, WELLS, PUMP SYSTEM, AND HOSE ROUTING IS ALWAYS SUBJECT TO UTILITY CONFLICT AND SUBSURFACE GEOLOGY. LOCATE/SOFT DIGGING ARE REQUIRED TO ENSURE SAFE INSTALLATION AND OPERATION OF SYSTEM AND COMPLIANCE WITH OTHER SITE SAFETY CONSIDERATIONS.

TIERRA GROUP™ Assured Geoscience Solutions

PROJECT: FPL MIAMI-DADE CLEAN WATER RECOVERY CENTER PIPELINE, PHASE 2B		CLIENT: GIANNETTI CONTRACTING CORP.	
FIGURE 2 - DEWATERING PLAN	PROJECT NO. 18374-2B	DRAWN BY: LS 11/20/23	SHEET 4 OF 6

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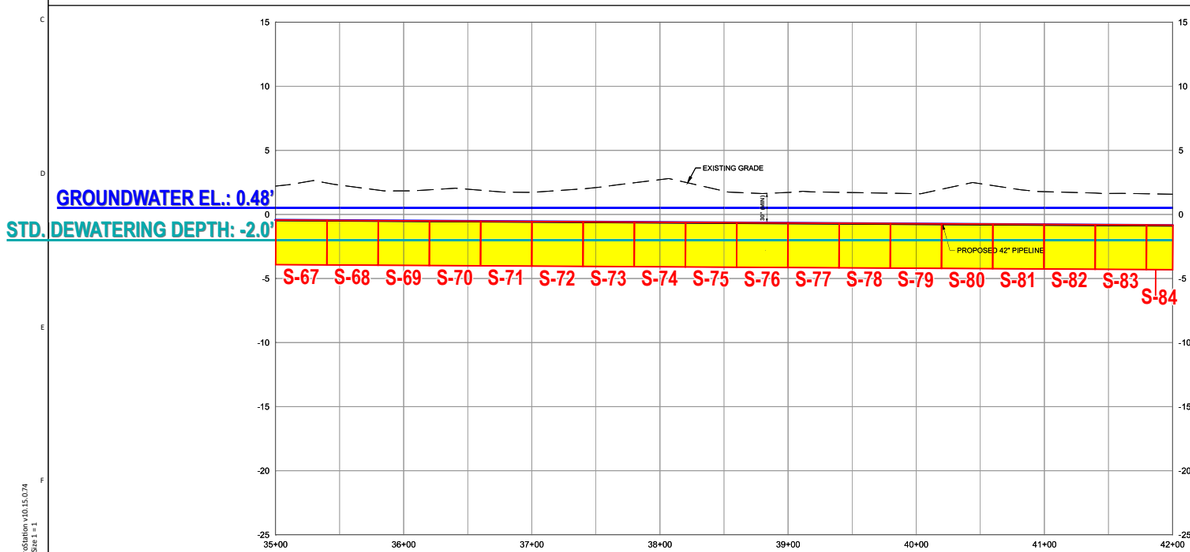
Robert L Vinson III
Digitally signed by Robert L Vinson III
Date: 2023.11.21 14:41:33 -07'00'

Robert L. Vinson III, Professional Engineer, State of Florida, License No. PE53438

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NO	DATE	REVISIONS AND RECORD OF ISSUE	DRN	DES	CHK	PDE	APP

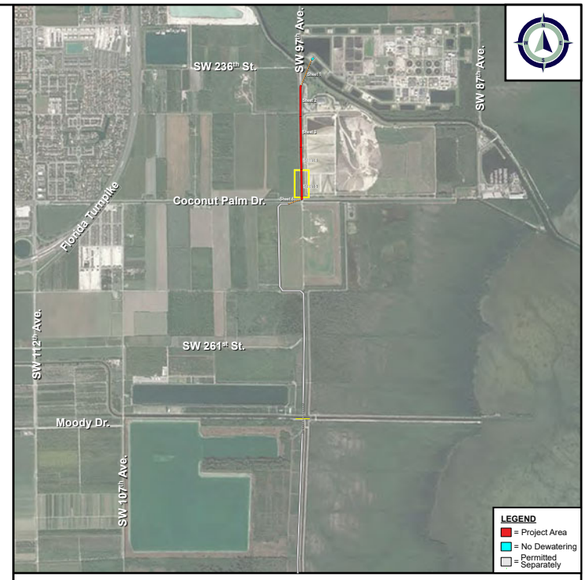
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OL	CJG
CHECKED	DATE
OL	

FLORIDA POWER & LIGHT
MIAMI-DADE CLEAN WATER RECOVERY CENTER
OFFSITE 42" REUSE PIPELINE - SDWWTP TO TURKEY POINT
PLAN AND PROFILE
STA 35+00 TO STA 42+00

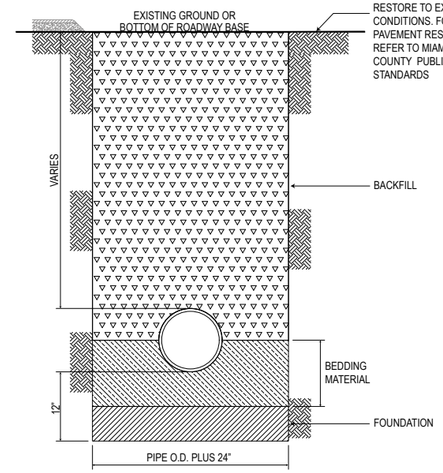
PROJECT	DRAWING NUMBER	REV
412398-5WWRRCW-3614		B

CODE
AREA

MicroStation v10.15.0.74
Full Size 1 = 1
gbi104920
AND-D (64/2)



PROJECT LOCATION MAP



TYPICAL TRENCH DETAIL

PROJECT GENERAL NOTES: Maximum Daily Pumpage: 345,621 US Gallons/day Maximum Dewatering Depth: -6.5' NAVD

811 Know what's below. Call before you dig.

DEWATERING SAFETY NOTE: FINAL PLACEMENT OF TEMPORARY WEIR TANKS, WELLS, PUMP SYSTEM, AND HOSE ROUTING IS ALWAYS SUBJECT TO UTILITY CONFLICT AND SUBSURFACE GEOLOGY. LOCATE/SOFT DIGGING ARE REQUIRED TO ENSURE SAFE INSTALLATION AND OPERATION OF SYSTEM AND COMPLIANCE WITH OTHER SITE SAFETY CONSIDERATIONS.

TIERRA GROUP™ Assured Geoscience Solutions

PROJECT: FPL MIAMI-DADE CLEAN WATER RECOVERY CENTER PIPELINE, PHASE 2B		CLIENT: GIANNETTI CONTRACTING CORP.	
FIGURE 2 - DEWATERING PLAN	PROJECT NO. 18374-2B	DRAWN BY: LS 11/20/23	SHEET 5 OF 6

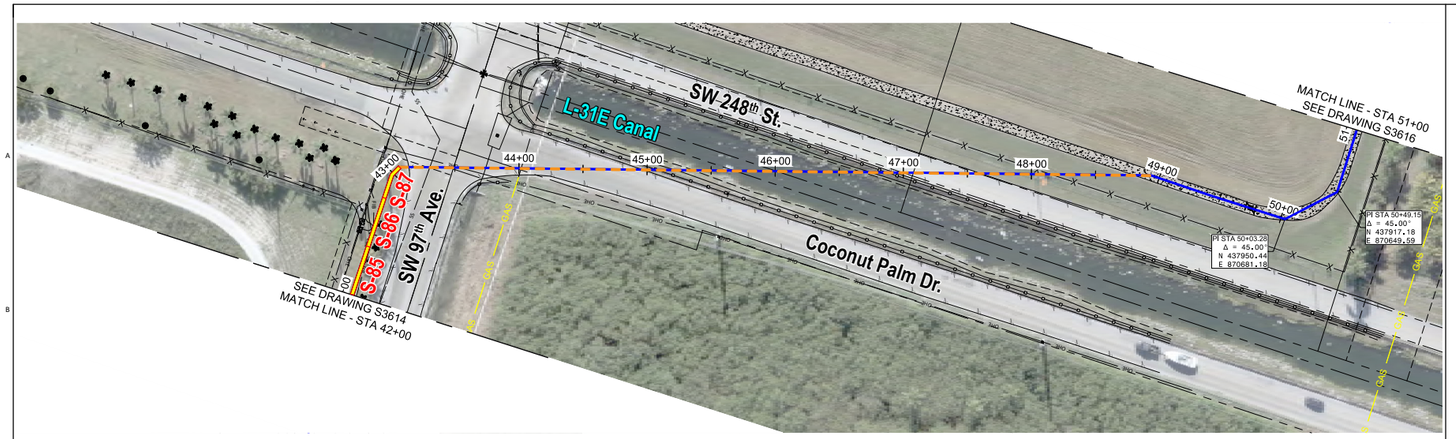
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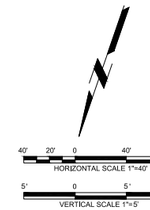
Robert L Vinson III
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Date: 2023.11.21 14:41:59 -07'00'

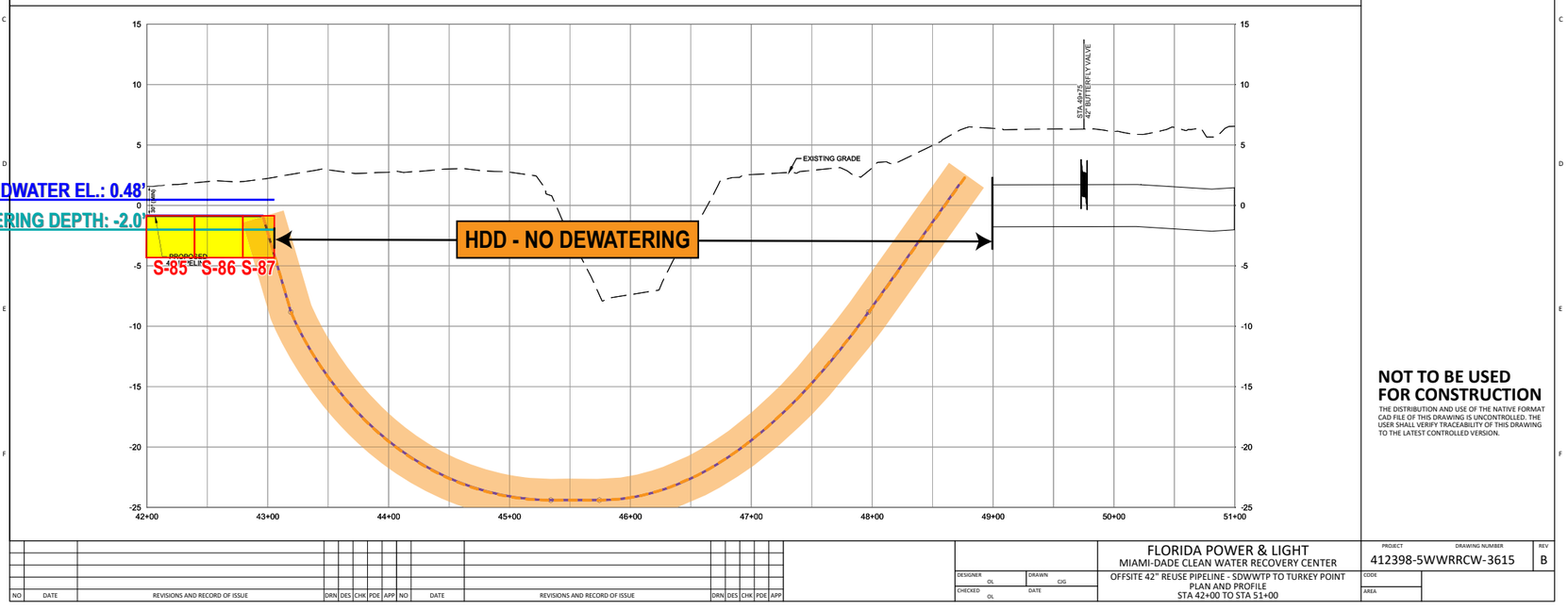
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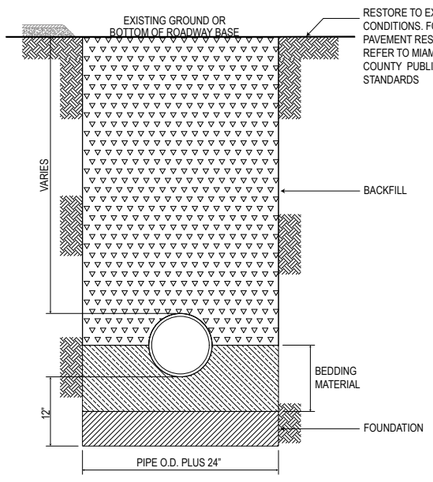
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NO.	DATE	REVISIONS AND RECORD OF ISSUE	DRN	DES	CHK	PDE	APP

FLORIDA POWER & LIGHT			
MIAMI-DADE CLEAN WATER RECOVERY CENTER			
DESIGNER OL	DRAWN CIG	PROJECT 412398-5WWRRCW-3615	REV B
CHECKED OL	DATE	CODE	
OFFSITE 42" REUSE PIPELINE - SDWWTP TO TURKEY POINT PLAN AND PROFILE STA 42+00 TO STA 51+00		AREA	



PROJECT LOCATION MAP



TYPICAL TRENCH DETAIL

PROJECT GENERAL NOTES: Maximum Daily Pumpage: 345,621 US Gallons/day Maximum Dewatering Depth: -6.5' NAVD

811 Know what's below. Call before you dig.

DEWATERING SAFETY NOTE: FINAL PLACEMENT OF TEMPORARY WEIR TANKS, WELLS, PUMP SYSTEM, AND HOSE ROUTING IS ALWAYS SUBJECT TO UTILITY CONFLICT AND SUBSURFACE GEOLOGY. LOCATE/SOFT DIGGING ARE REQUIRED TO ENSURE SAFE INSTALLATION AND OPERATION OF SYSTEM AND COMPLIANCE WITH OTHER SITE SAFETY CONSIDERATIONS.

TIERRA GROUP™ Assured Geoscience Solutions

PROJECT: FPL MIAMI-DADE CLEAN WATER RECOVERY CENTER PIPELINE, PHASE 2B		CLIENT: GIANNETTI CONTRACTING CORP.	
FIGURE 2 - DEWATERING PLAN	PROJECT NO. 18374-2B	DRAWN BY: LS 11/20/23	SHEET 6 OF 6

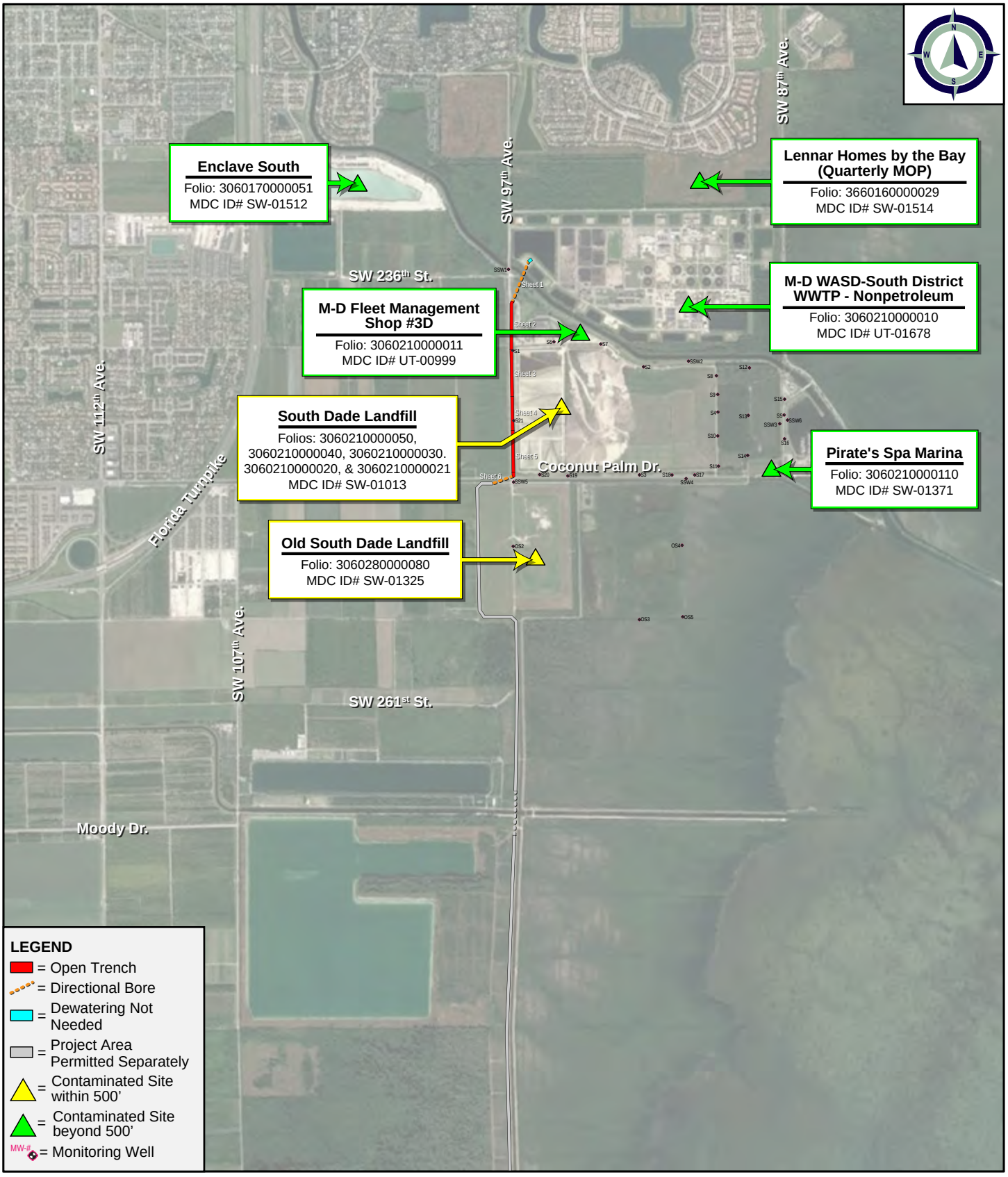
O: (954) 202 9226 ‖ E: ADMIN@TIERRASOLUTIONS.COM ‖ WWW.TIERRASOLUTIONS.COM

Robert L Vinson III
Digitally signed by Robert L Vinson III
Date: 2023.11.21 14:42:23 -07'00'

Robert L. Vinson III, Professional Engineer, State of Florida, License No. PE53438

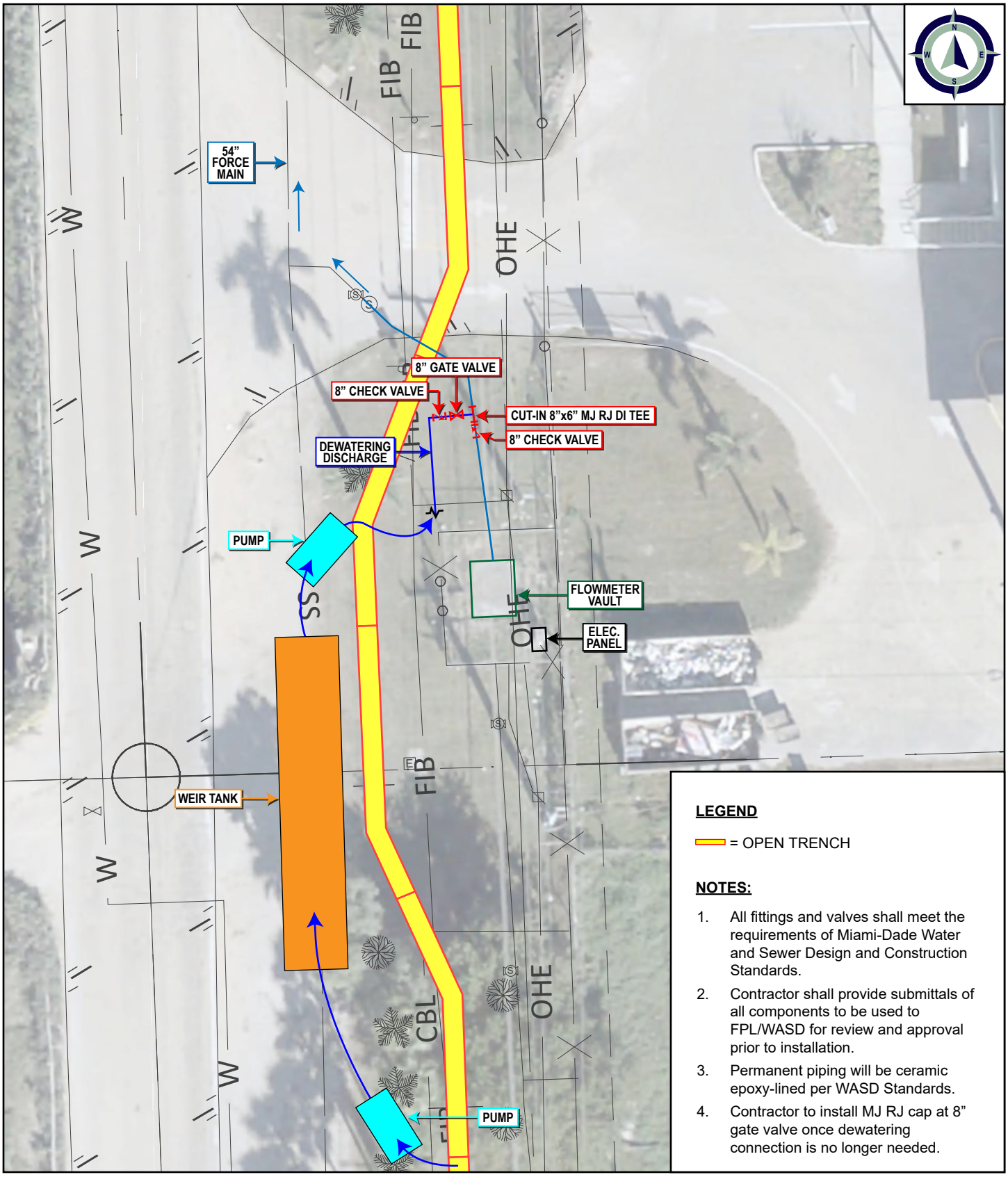
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TIERRA GROUP™ Assured Geoscience Solutions	PROJECT: FPL MIAMI-DADE CLEAN WATER RECOVERY CENTER PIPELINE, PHASE 2B		CLIENT: GIANNETTI CONTRACTING CORP.
FIGURE 3 - CONTAMINATION MAP	SCALE: APPROX. 1" = 0.5 Mile (0' 1,320' 2,640')	DATE: 11/7/2023	DRAWN BY: LS

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LEGEND

= OPEN TRENCH

NOTES:

1. All fittings and valves shall meet the requirements of Miami-Dade Water and Sewer Design and Construction Standards.
2. Contractor shall provide submittals of all components to be used to FPL/WASD for review and approval prior to installation.
3. Permanent piping will be ceramic epoxy-lined per WASD Standards.
4. Contractor to install MJ RJ cap at 8" gate valve once dewatering connection is no longer needed.

TIERRA GROUP™ Assured Geoscience Solutions	PROJECT: FPL MIAMI-DADE CLEAN WATER RECOVERY CENTER PIPELINE, PHASE 2B		CLIENT: GIANNETTI CONTRACTING CORP.
FIGURE 4 - TYPICAL SYSTEM LAYOUT	SCALE: APPROX. 1" = 20' (0' 10' 20')	DATE: 11/21/2023	DRAWN BY: LS

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ATTACHMENT A

Dewatering Calculations - Sichardt's Equation
FPL CWRC Pipeline - Phase 2B, Miami-Dade County, FL

Rectangular Excavation

1. $Radius\ of\ Influence\ (m) = 3000 \times Drawdown\ (m) \times \sqrt{Hydraulic\ Conductivity\ (\frac{m}{s})}$

2. $Effective\ Radius\ (m) = \sqrt{\frac{Excavation\ Width\ (m) \times Excavation\ Length\ (m)}{\pi}}$

3. $Flow\ Rate\ (^{m^3}/_{S}) = \frac{\pi \times Hydraulic\ Conductivity\ \left(\frac{m}{s}\right) \times [H(m)^2 - h(m)^2]}{\left[Ln\left(Radius\ of\ Influence\ (m)\right) - Ln(Effective\ Radius\ (m))\right]}$

Sheet #	Excavation	GW Elevation[1] (ft)	Exc. Bottom Elevation[2] (ft)	Drawdown (ft)	Aquifer Head[3] (H) (ft)	Aquifer Head (H) (m)	Dewatered Aquifer Head (h) (ft)	Dewatered Aquifer Head (h) (m)	Hydraulic Conductivity[4] (K) (ft/day)	Hydraulic Conductivity (K) (m/s)	Radius of Influence (ROI) (ft)	Radius of Influence (ROI) (m)	Excavation Width[5] (ft)	Excavation Width (m)	Excavation Length[5] (ft)	Excavation Length (m)	Effective Radius (r_e) (ft)	Effective Radius (r_e) (m)	Total Radius of Influence (ft)	Total Radius of Influence (m)	Flow Rate (gpm)	Section Pumpage (gallons)
1	S-1	0.48	1.50	0.00	150.00	45.72	150.00	45.72	106.27	0.000375	0.00	0.00	8.00	2.44	45.00	13.72	0.00	0.00	0.00	0.00	0.00	0
1	S-2	0.48	1.50	0.00	150.00	45.72	150.00	45.72	106.27	0.000375	0.00	0.00	8.00	2.44	40.00	12.19	0.00	0.00	0.00	0.00	0.00	0
2	S-3	0.48	-2.00	2.48	150.00	45.72	147.52	44.96	106.27	0.000375	144.06	43.91	8.00	2.44	40.00	12.19	10.10	3.08	154.15	46.99	481.18	57,741
2	S-4	0.48	-2.00	2.48	150.00	45.72	147.52	44.96	106.27	0.000375	144.06	43.91	8.00	2.44	40.00	12.19	10.10	3.08	154.15	46.99	481.18	57,741
2	S-5	0.48	-2.00	2.48	150.00	45.72	147.52	44.96	106.27	0.000375	144.06	43.91	8.00	2.44	40.00	12.19	10.10	3.08	154.15	46.99	481.18	57,741
2	S-6	0.48	-2.00	2.48	150.00	45.72	147.52	44.96	106.27	0.000375	144.06	43.91	8.00	2.44	40.00	12.19	10.10	3.08	154.15	46.99	481.18	57,741
2	S-7	0.48	-2.00	2.48	150.00	45.72	147.52	44.96	106.27	0.000375	144.06	43.91	8.00	2.44	40.00	12.19	10.10	3.08	154.15	46.99	481.18	57,741
2	S-8	0.48	-2.00	2.48	150.00	45.72	147.52	44.96	106.27	0.000375	144.06	43.91	8.00	2.44	40.00	12.19	10.10	3.08	154.15	46.99	481.18	57,741
2	S-9	0.48	-2.00	2.48	150.00	45.72	147.52	44.96	106.27	0.000375	144.06	43.91	8.00	2.44	40.00	12.19	10.10	3.08	154.15	46.99	481.18	57,741
2	S-10	0.48	-2.00	2.48	150.00	45.72	147.52	44.96	106.27	0.000375	144.06	43.91	8.00	2.44	40.00	12.19	10.10	3.08	154.15	46.99	481.18	57,741
2	S-11	0.48	-2.00	2.48	150.00	45.72	147.52	44.96	106.27	0.000375	144.06	43.91	8.00	2.44	40.00	12.19	10.10	3.08	154.15	46.99	481.18	57,741
2	S-12	0.48	-2.00	2.48	150.00	45.72	147.52	44.96	106.27	0.000375	144.06	43.91	8.00	2.44	40.00	12.19	10.10	3.08	154.15	46.99	481.18	57,741
2	S-13	0.48	-2.00	2.48	150.00	45.72	147.52	44.96	106.27	0.000375	144.06	43.91	8.00	2.44	40.00	12.19	10.10	3.08	154.15	46.99	481.18	57,741
2	S-14	0.48	-2.00	2.48	150.00	45.72	147.52	44.96	106.27	0.000375	144.06	43.91	8.00	2.44	40.00	12.19	10.10	3.08	154.15	46.99	481.18	57,741
2	S-15	0.48	-2.00	2.48	150.00	45.72	147.52	44.96	106.27	0.000375	144.06	43.91	8.00	2.44	40.00	12.19	10.10	3.08	154.15	46.99	481.18	57,741
2	S-16	0.48	-2.00	2.48	150.00	45.72	147.52	44.96	106.27	0.000375	144.06	43.91	8.00	2.44	40.00	12.19	10.10	3.08	154.15	46.99	481.18	57,741
2	S-17	0.48	-6.50	6.98	150.00	45.72	143.02	43.59	106.27	0.000375	405.45	123.58	8.00	2.44	40.00	12.19	10.10	3.08	**415.54**	126.66	**960.06**	**115,207**
2	S-18	0.48	-6.50	6.98	150.00	45.72	143.02	43.59	106.27	0.000375	405.45	123.58	8.00	2.44	40.00	12.19	10.10	3.08	**415.54**	126.66	**960.06**	**115,207**
2	S-19	0.48	-6.50	6.98	150.00	45.72	143.02	43.59	106.27	0.000375	405.45	123.58	8.00	2.44	40.00	12.19	10.10	3.08	**415.54**	126.66	**960.06**	**115,207**
2	S-20	0.48	-6.50	6.98	150.00	45.72	143.02	43.59	106.27	0.000375	405.45	123.58	8.00	2.44	40.00	12.19	10.10	3.08	**415.54**	126.66	**960.06**	**115,207**
2	S-21	0.48	-6.50	6.98	150.00	45.72	143.02	43.59	106.27	0.000375	405.45	123.58	8.00	2.44	40.00	12.19	10.10	3.08	**415.54**	126.66	**960.06**	**115,207**
2	S-22	0.48	-2.00	2.48	150.00	45.72	147.52	44.96	106.27	0.000375	144.06	43.91	8.00	2.44	40.00	12.19	10.10	3.08	154.15	46.99	481.18	57,741
2	S-23	0.48	-2.00	2.48	150.00	45.72	147.52	44.96	106.27	0.000375	144.06	43.91	8.00	2.44	40.00	12.19	10.10	3.08	154.15	46.99	481.18	57,741
2	S-24	0.48	-2.00	2.48	150.00	45.72	147.52	44.96	106.27	0.000375	144.06	43.91	8.00	2.44	40.00	12.19	10.10	3.08	154.15	46.99	481.18	57,741
2	S-25	0.48	-2.00	2.48	150.00	45.72	147.52	44.96	106.27	0.000375	144.06	43.91	8.00	2.44	20.00	6.10	7.14	2.18	151.19	46.08	425.68	51,081
3	S-26	0.48	-2.00	2.48	150.00	45.72	147.52	44.96	106.27	0.000375	144.06	43.91	8.00	2.44	40.00	12.19	10.10	3.08	154.15	46.99	481.18	57,741
3	S-27	0.48	-2.00	2.48	150.00	45.72	147.52	44.96	106.27	0.000375	144.06	43.91	8.00	2.44	40.00	12.19	10.10	3.08	154.15	46.99	481.18	57,741
3	S-28	0.48	-2.00	2.48	150.00	45.72	147.52	44.96	106.27	0.000375	144.06	43.91	8.00	2.44	40.00	12.19	10.10	3.08	154.15	46.99	481.18	57,741
3	S-29	0.48	-2.00	2.48	150.00	45.72	147.52	44.96	106.27	0.000375	144.06	43.91	8.00	2.44	40.00	12.19	10.10	3.08	154.15	46.99	481.18	57,741
3	S-30	0.48	-2.00	2.48	150.00	45.72	147.52	44.96	106.27	0.000375	144.06	43.91	8.00	2.44	40.00	12.19	10.10	3.08	154.15	46.99	481.18	57,741
3	S-31	0.48	-2.00	2.48	150.00	45.72	147.52	44.96	106.27	0.000375	144.06	43.91	8.00	2.44	40.00	12.19	10.10	3.08	154.15	46.99	481.18	57,741
3	S-32	0.48	-2.00	2.48	150.00	45.72	147.52	44.96	106.27	0.000375	144.06	43.91	8.00	2.44	40.00	12.19	10.10	3.08	154.15	46.99	481.18	57,741
3	S-33	0.48	-2.00	2.48	150.00	45.72	147.52	44.96	106.27	0.000375	144.06	43.91	8.00	2.44	40.00	12.19	10.10	3.08	154.15	46.99	481.18	57,741
3	S-34	0.48	-2.00	2.48	150.00	45.72	147.52	44.96	106.27	0.000375	144.06	43.91	8.00	2.44	40.00	12.19	10.10	3.08	154.15	46.99	481.18	57,741
3	S-35	0.48	-2.00	2.48	150.00	45.72	147.52	44.96	106.27	0.000375	144.06	43.91	8.00	2.44	40.00	12.19	10.10	3.08	154.15	46.99	481.18	57,741
3	S-36	0.48	-2.00	2.48	150.00	45.72	147.52	44.96	106.27	0.000375	144.06	43.91	8.00	2.44	40.00	12.19	10.10	3.08	154.15	46.99	481.18	57,741
3	S-37	0.48	-2.00	2.48	150.00	45.72	147.52	44.96	106.27	0.000375	144.06	43.91	8.00	2.44	40.00	12.19	10.10	3.08	154.15	46.99	481.18	57,741
3	S-38	0.48	-2.00	2.48	150.00	45.72	147.52	44.96	106.27	0.000375	144.06	43.91	8.00	2.44	40.00	12.19	10.10	3.08	154.15	46.99	481.18	57,741
3	S-39	0.48	-2.00	2.48	150.00	45.72	147.52	44.96	106.27	0.000375	144.06	43.91	8.00	2.44	40.00	12.19	10.10	3.08	154.15	46.99	481.18	57,741
3	S-40	0.48	-2.00	2.48	150.00	45.72	147.52	44.96	106.27	0.000375	144.06	43.91	8.00	2.44	40.00	12.19	10.10	3.08	154.15	46.99	481.18	57,741
3	S-41	0.48	-2.00	2.48	150.00	45.72	147.52	44.96	106.27	0.000375	144.06	43.91	8.00	2.44	40.00	12.19	10.10	3.08	154.15	46.99	481.18	57,741
3	S-42	0.48	-2.00	2.48	150.00	45.72	147.52	44.96	106.27	0.000375	144.06	43.91	8.00	2.44	40.00	12.19	10.10	3.08	154.15	46.99	481.18	57,741

Dewatering Calculations - Sichardt's Equation
FPL CWRC Pipeline - Phase 2B, Miami-Dade County, FL

Sheet #	Excavation	GW Elevation[1] (ft)	Exc. Bottom Elevation[2] (ft)	Drawdown (ft)	Aquifer Head[3] (H) (ft)	Aquifer Head (H) (m)	Dewatered Aquifer Head (h) (ft)	Dewatered Aquifer Head (h) (m)	Hydraulic Conductivity[4] (K) (ft/day)	Hydraulic Conductivity (K) (m/s)	Radius of Influence (ROI) (ft)	Radius of Influence (ROI) (m)	Excavation Width[5] (ft)	Excavation Width (m)	Excavation Length[5] (ft)	Excavation Length (m)	Effective Radius (r_e) (ft)	Effective Radius (r_e) (m)	Total Radius of Influence (ft)	Total Radius of Influence (m)	Flow Rate (gpm)	Section Pumpage (gallons)
3	S-43	0.48	-2.00	2.48	150.00	45.72	147.52	44.96	106.27	0.000375	144.06	43.91	8.00	2.44	40.00	12.19	10.10	3.08	154.15	46.99	481.18	57,741
3	S-44	0.48	-2.00	2.48	150.00	45.72	147.52	44.96	106.27	0.000375	144.06	43.91	8.00	2.44	40.00	12.19	10.10	3.08	154.15	46.99	481.18	57,741
3	S-45	0.48	-2.00	2.48	150.00	45.72	147.52	44.96	106.27	0.000375	144.06	43.91	8.00	2.44	40.00	12.19	10.10	3.08	154.15	46.99	481.18	57,741
3	S-46	0.48	-6.50	6.98	150.00	45.72	143.02	43.59	106.27	0.000375	405.45	123.58	8.00	2.44	40.00	12.19	10.10	3.08	**415.54**	126.66	**960.06**	**115,207**
3	S-47	0.48	-6.50	6.98	150.00	45.72	143.02	43.59	106.27	0.000375	405.45	123.58	8.00	2.44	40.00	12.19	10.10	3.08	**415.54**	126.66	**960.06**	**115,207**
3	S-48	0.48	-6.50	6.98	150.00	45.72	143.02	43.59	106.27	0.000375	405.45	123.58	8.00	2.44	20.00	6.10	7.14	2.18	412.59	125.76	877.69	105,323
4	S-49	0.48	-2.00	2.48	150.00	45.72	147.52	44.96	110.59	0.000390	146.96	44.79	8.00	2.44	40.00	12.19	10.10	3.08	157.05	47.87	497.01	59,641
4	S-50	0.48	-2.00	2.48	150.00	45.72	147.52	44.96	110.59	0.000390	146.96	44.79	8.00	2.44	40.00	12.19	10.10	3.08	157.05	47.87	497.01	59,641
4	S-51	0.48	-2.00	2.48	150.00	45.72	147.52	44.96	110.59	0.000390	146.96	44.79	8.00	2.44	40.00	12.19	10.10	3.08	157.05	47.87	497.01	59,641
4	S-52	0.48	-2.00	2.48	150.00	45.72	147.52	44.96	110.59	0.000390	146.96	44.79	8.00	2.44	40.00	12.19	10.10	3.08	157.05	47.87	497.01	59,641
4	S-53	0.48	-2.00	2.48	150.00	45.72	147.52	44.96	110.59	0.000390	146.96	44.79	8.00	2.44	40.00	12.19	10.10	3.08	157.05	47.87	497.01	59,641
4	S-54	0.48	-2.00	2.48	150.00	45.72	147.52	44.96	110.59	0.000390	146.96	44.79	8.00	2.44	40.00	12.19	10.10	3.08	157.05	47.87	497.01	59,641
4	S-55	0.48	-2.00	2.48	150.00	45.72	147.52	44.96	110.59	0.000390	146.96	44.79	8.00	2.44	40.00	12.19	10.10	3.08	157.05	47.87	497.01	59,641
4	S-56	0.48	-2.00	2.48	150.00	45.72	147.52	44.96	110.59	0.000390	146.96	44.79	8.00	2.44	40.00	12.19	10.10	3.08	157.05	47.87	497.01	59,641
4	S-57	0.48	-2.00	2.48	150.00	45.72	147.52	44.96	110.59	0.000390	146.96	44.79	8.00	2.44	40.00	12.19	10.10	3.08	157.05	47.87	497.01	59,641
4	S-58	0.48	-2.00	2.48	150.00	45.72	147.52	44.96	110.59	0.000390	146.96	44.79	8.00	2.44	40.00	12.19	10.10	3.08	157.05	47.87	497.01	59,641
4	S-59	0.48	-2.00	2.48	150.00	45.72	147.52	44.96	110.59	0.000390	146.96	44.79	8.00	2.44	40.00	12.19	10.10	3.08	157.05	47.87	497.01	59,641
4	S-60	0.48	-2.00	2.48	150.00	45.72	147.52	44.96	110.59	0.000390	146.96	44.79	8.00	2.44	40.00	12.19	10.10	3.08	157.05	47.87	497.01	59,641
4	S-61	0.48	-2.00	2.48	150.00	45.72	147.52	44.96	110.59	0.000390	146.96	44.79	8.00	2.44	40.00	12.19	10.10	3.08	157.05	47.87	497.01	59,641
4	S-62	0.48	-2.00	2.48	150.00	45.72	147.52	44.96	110.59	0.000390	146.96	44.79	8.00	2.44	40.00	12.19	10.10	3.08	157.05	47.87	497.01	59,641
4	S-63	0.48	-2.00	2.48	150.00	45.72	147.52	44.96	110.59	0.000390	146.96	44.79	8.00	2.44	40.00	12.19	10.10	3.08	157.05	47.87	497.01	59,641
4	S-64	0.48	-2.00	2.48	150.00	45.72	147.52	44.96	110.59	0.000390	146.96	44.79	8.00	2.44	40.00	12.19	10.10	3.08	157.05	47.87	497.01	59,641
4	S-65	0.48	-2.00	2.48	150.00	45.72	147.52	44.96	110.59	0.000390	146.96	44.79	8.00	2.44	40.00	12.19	10.10	3.08	157.05	47.87	497.01	59,641
4	S-66	0.48	-2.00	2.48	150.00	45.72	147.52	44.96	110.59	0.000390	146.96	44.79	8.00	2.44	20.00	6.10	7.14	2.18	154.09	46.97	440.06	52,808
5	S-67	0.48	-2.00	2.48	150.00	45.72	147.52	44.96	110.59	0.000390	146.96	44.79	8.00	2.44	40.00	12.19	10.10	3.08	157.05	47.87	497.01	59,641
5	S-68	0.48	-2.00	2.48	150.00	45.72	147.52	44.96	110.59	0.000390	146.96	44.79	8.00	2.44	40.00	12.19	10.10	3.08	157.05	47.87	497.01	59,641
5	S-69	0.48	-2.00	2.48	150.00	45.72	147.52	44.96	110.59	0.000390	146.96	44.79	8.00	2.44	40.00	12.19	10.10	3.08	157.05	47.87	497.01	59,641
5	S-70	0.48	-2.00	2.48	150.00	45.72	147.52	44.96	110.59	0.000390	146.96	44.79	8.00	2.44	40.00	12.19	10.10	3.08	157.05	47.87	497.01	59,641
5	S-71	0.48	-2.00	2.48	150.00	45.72	147.52	44.96	110.59	0.000390	146.96	44.79	8.00	2.44	40.00	12.19	10.10	3.08	157.05	47.87	497.01	59,641
5	S-72	0.48	-2.00	2.48	150.00	45.72	147.52	44.96	110.59	0.000390	146.96	44.79	8.00	2.44	40.00	12.19	10.10	3.08	157.05	47.87	497.01	59,641
5	S-73	0.48	-2.00	2.48	150.00	45.72	147.52	44.96	110.59	0.000390	146.96	44.79	8.00	2.44	40.00	12.19	10.10	3.08	157.05	47.87	497.01	59,641
5	S-74	0.48	-2.00	2.48	150.00	45.72	147.52	44.96	110.59	0.000390	146.96	44.79	8.00	2.44	40.00	12.19	10.10	3.08	157.05	47.87	497.01	59,641
5	S-75	0.48	-2.00	2.48	150.00	45.72	147.52	44.96	110.59	0.000390	146.96	44.79	8.00	2.44	40.00	12.19	10.10	3.08	157.05	47.87	497.01	59,641
5	S-76	0.48	-2.00	2.48	150.00	45.72	147.52	44.96	110.59	0.000390	146.96	44.79	8.00	2.44	40.00	12.19	10.10	3.08	157.05	47.87	497.01	59,641
5	S-77	0.48	-2.00	2.48	150.00	45.72	147.52	44.96	110.59	0.000390	146.96	44.79	8.00	2.44	40.00	12.19	10.10	3.08	157.05	47.87	497.01	59,641
5	S-78	0.48	-2.00	2.48	150.00	45.72	147.52	44.96	110.59	0.000390	146.96	44.79	8.00	2.44	40.00	12.19	10.10	3.08	157.05	47.87	497.01	59,641
5	S-79	0.48	-2.00	2.48	150.00	45.72	147.52	44.96	110.59	0.000390	146.96	44.79	8.00	2.44	40.00	12.19	10.10	3.08	157.05	47.87	497.01	59,641
5	S-80	0.48	-2.00	2.48	150.00	45.72	147.52	44.96	110.59	0.000390	146.96	44.79	8.00	2.44	40.00	12.19	10.10	3.08	157.05	47.87	497.01	59,641
5	S-81	0.48	-2.00	2.48	150.00	45.72	147.52	44.96	110.59	0.000390	146.96	44.79	8.00	2.44	40.00	12.19	10.10	3.08	157.05	47.87	497.01	59,641
5	S-82	0.48	-2.00	2.48	150.00	45.72	147.52	44.96	110.59	0.000390	146.96	44.79	8.00	2.44	40.00	12.19	10.10	3.08	157.05	47.87	497.01	59,641
5	S-83	0.48	-2.00	2.48	150.00	45.72	147.52	44.96	110.59	0.000390	146.96	44.79	8.00	2.44	40.00	12.19	10.10	3.08	157.05	47.87	497.01	59,641
5	S-84	0.48	-2.00	2.48	150.00	45.72	147.52	44.96	110.59	0.000390	146.96	44.79	8.00	2.44	20.00	6.10	7.14	2.18	154.09	46.97	440.06	52,808

Dewatering Calculations - Sichardt's Equation
FPL CWRC Pipeline - Phase 2B, Miami-Dade County, FL

Sheet #	Excavation	GW Elevation[1] (ft)	Exc. Bottom Elevation[2] (ft)	Drawdown (ft)	Aquifer Head[3] (H) (ft)	Aquifer Head (H) (m)	Dewatered Aquifer Head (h) (ft)	Dewatered Aquifer Head (h) (m)	Hydraulic Conductivity[4] (K) (ft/day)	Hydraulic Conductivity (K) (m/s)	Radius of Influence (ROI) (ft)	Radius of Influence (ROI) (m)	Excavation Width[5] (ft)	Excavation Width (m)	Excavation Length[5] (ft)	Excavation Length (m)	Effective Radius (r_e) (ft)	Effective Radius (r_e) (m)	Total Radius of Influence (ft)	Total Radius of Influence (m)	Flow Rate (gpm)	Section Pumpage (gallons)
6	S-85	0.48	-2.00	2.48	150.00	45.72	147.52	44.96	110.59	0.000390	146.96	44.79	8.00	2.44	40.00	12.19	10.10	3.08	157.05	47.87	497.01	59,641
6	S-86	0.48	-2.00	2.48	150.00	45.72	147.52	44.96	110.59	0.000390	146.96	44.79	8.00	2.44	40.00	12.19	10.10	3.08	157.05	47.87	497.01	59,641
6	S-87	0.48	-2.00	2.48	150.00	45.72	147.52	44.96	110.59	0.000390	146.96	44.79	8.00	2.44	20.00	6.10	7.14	2.18	154.09	46.97	440.06	52,808
PROJECT TOTALS															*3,385.00*	*1,031.75*						*5,404,793*

TABLE NOTES:

NAVD: North American Vertical Datum of 1988

[1] Groundwater elevation provided by Miami-Dade DERM Natural Resources on September 12, 2023.

[2] Maximum dewatering depth is -6.5 ft relative to NAVD.

[3] Aquifer Head (H) determined from *United States Geological Survey: Water-Resources Investigations Report 90-4108 Hydrogeology of the Surficial Aquifer System,* Dade County, Florida (1991).

[4] Hydraulic conductivity (K) referenced from *Geotechnical Data Report, Miami-Dade Clean Water Recovery Center Pipeline* , prepared September 2023 by Blascom Engineering, Inc.

[5] Conventional trench excavations are 8.0 ft. wide and 40.0 ft. long.

Bold Values: Maximum values for the radius of influence (ROI), dewatering flow rate, and daily dewatering pumpage.

DEWATERING SUMMARY :

*Average section pumpage :	0.064	MG
*Maximum section pumpage :	0.115	MG
*Average daily pumpage :	0.318	MGD
*Maximum daily pumpage :	0.346	MGD
**Project pumpage :	6.756	MG
**Dewatering duration:	36	Days

*Estimated project construction rate is three (3) sections per day.

**Total project pumpage includes a 25% safety factor to account for equipment breakage, severe weather events, etc.

The calculations presented are deemed appropriate and in accordance with State of Florida Rules and Regulation as certified by a registered Professional Engineer authorized by Chapter 471, Florida Statutes and defined by the Florida State Board of Professional Engineering.
To the best of my knowledge, all information summarized in this report is true, accurate, complete, and in accordance with applicable State of Florida Rules and Regulations.

Reviewed and Approved by:
Robert L Vinson III
Digitally signed by Robert L Vinson III
Date: 2023.11.21 14:27:05 -07'00'
Robert L. Vinson III, P.E.
License No. 53438

Robert L. Vinson III, Professional Engineer, State of Florida, License No. PE53438
This item has been digitally signed and sealed by Robert L. Vinson III, PE, on the date of this digital signature.
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Dewatering Radius of Influence (Sichardt's Equation)
and Maximum Dewatering Volume (Section Pumpage)

Project: FPL CWRC Pipeline, Phase 2B

Location: Miami-Dade County, Florida

Summary of Plan Details:

Ground surface elevation at the proposed dewatering site varies with a maximum elevation of +9.0 feet relative to the North American Vertical Datum of 1988 (NAVD). Average groundwater elevation at the dewatering site is 0.48 feet NAVD, and the maximum dewatering depth is -6.5 feet NAVD. Pipe will be installed partially "in the wet" to reduce drawdown volume, dewatering flow rate and radius of influence.

Dewatering fluids will be pumped from the excavation trenches using a self-priming six-inch (6") pump, or equivalent, through an 18,000-gallon sedimentation weir tank prior to pumping into an existing 8" sanitary sewer connection to the 54-inch force main, as shown in **Figure 4**. The existing 54" sewer forcemain is used to convey raw wastewater to the South District Wastewater Treatment Plant (SDWWTP) headworks for treatment. An 8" x 8" tee will be cut into the force main and an 8" check valve will be installed upstream to ensure downstream flow. An additional check valve will be connected to the dewatering discharge piping to prevent backflow from the force main towards the dewatering pumps. The Miami-Dade Water and Sewer Department approved of this plan in an email dated October 24, 2023. Turbidity control includes the provision of a sedimentation weir tank; particle settling calculations are included in **Attachment A**. Pump and sedimentation tank specification data are included as **Attachment D**.

Dewatering assumptions are based on the time to dig, dewater, and install subsurface infrastructure during daylight working hours. Dewatering duration for this portion of the pipeline project is estimated at ten (10) hours per day for thirty-six (36) working days based on a production rate of 120 linear feet per day. A 1.25 Factor of safety has been added to account for weather delays, equipment breakdowns, and other unforeseen circumstances.

Variable	Value	US units	Value	Metric Units
Hydraulic Conductivity (k)	106.27	feet/day	0.000375	meters/second
Aquifer Thickness (H)	150	feet	45.72	meters
Depth to Water	3.62	feet	1.10	meters
Excavation Depth	10.6	feet	3.23	meters
Open Trench Length (a)	40	feet	12.19	meters
Open Trench Width (b)	8	feet	2.44	meters
π	3.14		3.14	
Number of Extraction Points (n)	1		1	
Pumping Time per day	120	minutes	120	minutes

Example Calculations

A. Calculation of Radius of Influence (R_0) for an open hole

$R_0 = 3000*(H-h)*\sqrt{k}$

h = H - (Excavation Depth - Depth to Water) =	43.59	meters
H - h =	2.13	meters
Radius of Influence (R_0) =	123.58	meters

B. Calculation of the Effective Radius (R_e) for rectangular excavation area adjustment

$r_e = \sqrt{[(a*b)/\pi]}$

r_e =	3.08	meters

C. Calculation of the Maximum Total Influence ($R_0 + R_e$)

Maximum Total Influence = Radius of influence (A.) + Effective radius of rectangular excavation dimensions (B.)

Maximum Radius of Influence =	126.66	meters
	415.54	feet

D. Dewatering Pump Rate (q) per Extraction Point (n = 1)

$H^2 - h^2 = (n*q/\pi*k)(\ln R_o - \ln r_e)$

h = H - (Excavation Depth - Depth to Water)	43.59	meters
$H^2 - h^2$	190.01	square meters
$\pi*k$	0.001177176	meters/second
$\ln R_0 - \ln r_e$	3.69	
$(H^2 - h^2) / (\ln R_0 - \ln r_e)$	51.45	
$q = ((H^2 - h^2)*\pi k)/((\ln R_0 - \ln r_e)*n)$	0.0606	$meters^3$/second
$q = ((H^2 - h^2)*\pi k)/((\ln R_0 - \ln r_e)*n)$	960.06	US gallons/minute
Maximum Section Pumpage for largest excavation dewatering demand (q x pumping time) =	**115,207**	US gallons/day
Maximum Daily Pumpage (3 consecutive sections with the largest dewatering demand) =	**345,621**	US gallons/day

The calculations presented are deemed appropriate and in accordance with State of Florida Rules and Regulation as certified by a registered Professional Engineer authorized by Chapter 471, Florida Statutes and defined by the Florida State Board of Professional Engineering. To the best of my knowledge, all information summarized in this report is true, accurate, complete, and in accordance with applicable State of Florida Rules and Regulations.

Reviewed and Approved by:

Robert L Vinson III

Digitally signed by Robert L Vinson III
Date: 2023.11.21 14:37:12 -07'00'

Robert L. Vinson III, P.E.
License No. 53438

Robert L. Vinson III, Professional Engineer, State of Florida, License No. PE53438
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Sedimentation Analysis
FPL CWRC Pipeline - Phase 2B
Miami-Dade County, FL
Particle Settling Analysis Using Stoke's Law

ASTM Soil Classification	Particle Size(s) of Concern			Particle Properties				Particle Settling Velocity	
	microns	mm	Seive Size	Particle Size (mm)	Particle Density (kg/m^3)	Fluid Density (kg/m^3)	Fluid Viscosity (Pa s)	V_p (m/s)	V_p (f/s)
Fine Sand	**75**	0.075	**200**	0.075	2600	1000	0.001	0.00467500	0.015339
Silt	**74**	0.074		0.074	2600	1000	0.001	0.00456300	0.014971
	55	0.055		0.055	2600	1000	0.001	0.00263780	0.008655
	40	0.04		0.04	2600	1000	0.001	0.00139520	0.004578
	25	0.025		0.025	2600	1000	0.001	0.00054500	0.001788
Clay	**5**	0.005		0.005	2600	1000	0.001	0.00002180	0.000072
	1	0.001		0.001	2600	1000	0.001	0.00000087	0.000003

Particle Settling Velocity Calculator:
https://www.meracalculator.com/physics/fluid-mechanics/stokes-law.php

Sedimentation Tank Analysis
Sedimentation Tank Size (gallons): 18,000

Pumping Rates (gpm)	Tank Specs				Detention Time (min)	Overflow Velocity (V_0) (fps)	$V_p >= V_0$ (YES = +, NO = -)					
	Capacity (V) (gal)	Width (ft)	Height (ft)	Length (ft)			75 microns	74 microns	55 microns	40 microns	25 microns	5 microns
1000	18,000	8.5	9.5	53.0	18	0.00494598	+	+	+	-	-	-
960	18,000	8.5	9.5	53.0	19	0.004748141	+	+	+	-	-	-
750	18,000	8.5	9.5	53.0	24	0.003709485	+	+	+	+	-	-
530	18,000	8.5	9.5	53.0	34	0.002621369	+	+	+	+	-	-
500	18,000	8.5	9.5	53.0	36	0.00247299	+	+	+	+	-	-

where :
Maximum Project Flow Rate = 960 gpm
Average Project Flow Rate = 530 gpm

Detention Time = V/Q
Overflow Velocity = $$\frac{Q}{A_s} = \frac{Q\ (gpm)}{W(ft) \times L(ft) \times 7.48 \frac{gal}{ft^3} \times 60 \frac{seg}{min}}$$

The calculations presented are deemed appropriate and in accordance with State of Florida Rules and Regulation as certified by a registered Professional Engineer authorized by Chapter 471, Florida Statutes and defined by the Florida State Board of Professional Engineering. To the best of my knowledge, all information summarized in this report is true, accurate, complete, and in accordance with applicable State of Florida Rules and Regulations.

Reviewed and Approved by:
Robert L Vinson III
Digitally signed by Robert L Vinson III
Date: 2023.11.21 14:35:09 -07'00'
Robert L. Vinson III, P.E.
License No. 53438

Robert L. Vinson III, Professional Engineer, State of Florida, License No. PE53438
This item has been digitally signed and sealed by Robert L. Vinson III, PE, on the date of this digital signature.
Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

BLASCOM ENGINEERING

March 13, 2023
Revised September 21, 2023

Tierra Consulting Group
1230 SW 6th Street
Pompano Beach, Florida 33069

Attn: Mr. Scott Zednek, P.G.

Re: Geotechnical Data Report
Miami-Dade Clean Water Recovery Center Pipeline
Route between SDWWTP & TP Power Plant, Homestead, FL
Tierra Consulting Project No.: 18374
Blascom Project No.: G23007

Dear Mr. Zednek:

Blascom Engineering, Inc. (Blascom) has completed the geotechnical engineering services for the above referenced project. This geotechnical data report presents the results of the subsurface field exploration and hydraulic conductivity testing performed on March 8, 2023, and on September 20, 2023. These services were performed in general accordance with our proposal No. PG23009 dated March 7, 2023.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning this report, please contact us.

Sincerely,
Blascom Engineering, Inc.
(Florida Registry No. 30144)

Julio de Blas

JULIO B. DE BLAS LICENSE No 64653 STATE OF FLORIDA PROFESSIONAL ENGINEER

Julio De Blas, P.E.
Senior Engineer
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This item has been digitally signed and sealed by Julio B. de Blas, P.E. on 09/21/2023.

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Cc: Addressee (1-PDF)



MIAMI-DADE CLEAN WATER RECOVERY CENTER PIPELINE, ROUTE BETWEEN SDWWTP & TP POWER PLANT HOMESTEAD, FL	BLASCOM ENGINEERING	*BLASCOM ENGINEERING, INC.* *FL REGISTRY No. 30144* *BLASCOM PROJECT No.: G23007*	***SITE VICINITY MAP & FIELD TEST LOCATION PLAN***	*EXHIBIT No.:* *A-1*

BLASCOM ENGINEERING

TABLE 2: SUMMARY OF CONSTANT HEAD OPEN HOLE TEST (PERCOLATION TEST)

MIAMI-DADE CLEAN WATER RECOVERY CENTER PIPELINE
ROUTE BETWEEN SDWWTP & TP POWER PLANT, HOMESTEAD, FL
BLASCOM PROJECT NO.: G23007
TIERRA CONSULTING PROJECT NO.: 18374

TEST NO.	TEST DATE	DIAMETER, d		DEPTH OF HOLE, D_H (FT.)	DEPTH TO GROUNDWATER LEVEL BELOW GROUND SURFACE (FT.)		WATER HEAD, ΔH (FT.)	SATURATED HOLE DEPTH, D_s (FT.)	AVERAGE FLOW RATE, Q (GPM)	HYDRAULIC CONDUCTIVITY, K (CFS/FT^2-FT. HEAD)
		HOLE (IN.)	PERFORATED CASING (IN.)		PRIOR TO TEST, H_2	DURING TEST, H_1				
EX-1	3/8/2023	6	2	10	1.3	0.0	1.3	8.7	10.3	3.59E-03
EX-2	3/8/2023	6	2	10	1.4	0.0	1.4	8.6	4.0	1.30E-03
EX-3	3/8/2023	6	2	10	2.0	0.0	2.0	8.0	2.0	4.71E-04
EX-4	9/20/2023	6	4	15	3.2	0.0	3.2	11.8	26.0	1.28E-03
EX-5	9/20/2023	6	4	15	3.8	0.0	3.8	11.2	29.0	1.23E-03

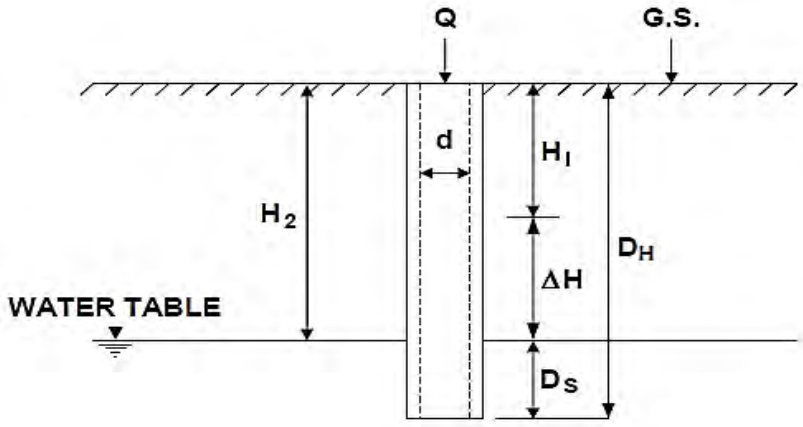
[1] The above hydraulic conductivity value is for a French drain installed to the same depth as the borehole test. The value represents an ultimate value. The designer should decide on the required factor of safety.

[2] The hydraulic conductivity value was calculated based on the South Florida Water Management District's 'Constant Head 'Open Hole' method.

[3] The diameter of the perforated casing was used in the computation of the hydraulic conductivity value.

[4] Refer to Exhibits A-2 and A-3 (Boring Soil Profiles) of the report for subsurface stratification information.

CONSTANT HEAD OPEN-HOLE TEST SCHEMATIC



$$K = \frac{4Q}{\pi d(2\Delta H^2 + 4\Delta H D_S + \Delta H d)}$$

K = HYDRAULIC CONDUCTIVITY (CFS/FT.² - FT.HEAD)
Q = "STABILIZED" FLOW RATE (CFS)
d = DIAMETER OF TEST HOLE (FEET)
H_2 = DEPTH TO WATER TABLE BEFORE TEST (FEET)
H_1 = DEPTH TO WATER TABLE DURING TEST (FEET)
D_S = SATURATED HOLE DEPTH (FEET)
D_H = DEPTH OF HOLE
ΔH = WATER HEAD DURING TEST (FT.HEAD)

ATTACHMENT B

SOUTH DADE LANDFILL



FIGURE 1
SITE PLAN

October 12, 2023
File No. 09221029.01

Mr. Mario Porcelli
Environmental Affairs Manager
DSWM Technical Services & Environmental Affairs Division
2525 N.W. 62nd Street, 5th Floor
Miami, Florida 33147

Subject: Second 2023 Semiannual Water Quality Monitoring Report
2021- 2023 Technical Report on Water Quality
South Dade Landfill – WACS ID: 56824
Permit No. 0126800-010-SC / 0126800-011-SO

Dear Mr. Porcelli:

Pursuant to the terms of the above referenced permit, enclosed please find the Second 2023 Semiannual Water Quality Monitoring Report and the 2021-2023 Technical Report on Water Quality for the South Dade Landfill. Please contact either of the undersigned if you have any questions.

Sincerely,

Myles Clewner
Project Director/Vice President
SCS Engineers

Bernadette G. Sarmiento, P.E.
Project Manager
SCS Engineers

BERNADETTE G. SARMIENTO LICENSE No. 92662 STATE OF FLORIDA PROFESSIONAL ENGINEER

This item has been digitally signed and sealed by Bernadette G. Sarmiento, P.E. on the date adjacent to the seal.

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Second 2023 Semiannual Water Quality Monitoring Report

and

2021-2023 Technical Report on Water Quality

South Dade Landfill
WACS ID Number: 56824
Miami-Dade County
S21-T56S-R40E

Miami-Dade County
Department of Solid Waste Management
Technical Services and Environmental Affairs Division

SCS ENGINEERS

09221029.01 | October 12, 2023

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Coconut Creek, FL 33073
561-441-1458

Table of Contents

Section Page

1 INTRODUCTION 1
SITE LOCATION 1
SITE BACKGROUND 1
WATER QUALITY MONITORING SYSTEM 2
Groundwater Monitoring Program 2
Surface Water Monitoring Program 3
WATER QUALITY SAMPLING 3
SEMIANNUAL WATER QUALITY MONITORING REPORT SCOPE 4
TECHNICAL REPORT SCOPE 4
2 SEMIANNUAL WATER QUALITY MONITORING REPORT 5
SEMIANNUAL MONITORING EVENT 5
FIELD TEST RESULTS 5
GROUNDWATER RESULTS 5
Sodium 6
Chloride 6
Total Dissolved Solids 6
Iron 6
SURFACE WATER RESULTS 7
SEMIANNUAL MONITORING CONCLUSIONS 7
3 TECHNICAL REPORT 8
GROUNDWATER RESULTS 8
PRIMARY DRINKING WATER STANDARDS 8
Sodium 8
SECONDARY DRINKING WATER STANDARDS 9
Chloride 9
Total Dissolved Solids 9
Iron 10
ADDITIONAL LEACHATE KEY INDICATOR PARAMETERS 10
Specific Conductivity 10
Ammonia 10
Field pH 10
GROUNDWATER CONTOUR MAP EVALUATION 11
SURFACE WATER ANALYTICAL RESULTS 11
ADEQUACY OF AVAILABLE DATA 11
SUMMARY 11

Figures

Figure 1. Site Map

Appendices

Appendix A Groundwater Level Tables and Contour Maps
Appendix B Groundwater Flow Direction Maps for Miami-Dade County
Appendix C Analytical Results and Field Documentation
Appendix D FDEP Form 62-701.900(31), FAC
Appendix E General Chemistry Tables
Appendix F Metals Tables
Appendix G Detected Volatile Organic Compounds Tables
Appendix H Surface Water Monitoring Tables
Appendix I Consistently Detected Parameters and Leachate Key Indicator Parameters
Appendix J Documentation on Redevelopment of Well MW12(15)

1 INTRODUCTION

This second 2023 Semiannual Water Quality Monitoring Report and 2021-2023 Technical Report on Water Quality (Report) presents water quality monitoring results and water level measurements for the South Dade Landfill, located in Miami-Dade County, Florida, in accordance with Rule 62-701.510(8)(b) of the Florida Administrative Code (FAC) and summarizes the five routine semiannual groundwater monitoring events performed at the site over a two and a half year period (from July 2021 through July 2023). This section of the report presents the location of the site, the site background, the water quality monitoring system, details on water quality sampling, and the Report scope.

SITE LOCATION

The South Dade Landfill is located in the southeast section of Miami-Dade County, Florida. The site is in Section 21, Township 56 South, Range 40 East and has a total property area of approximately 320 acres. The facility is located at latitude 25°32'40"N and longitude 80°20'53"W. It is located in a saltwater intruded area of coastal Miami-Dade County, approximately 12 miles northeast of Homestead and 20 miles south of Miami. It is bounded to the North by the Black Creek, to the West by S.W. 97th Avenue, to the South by S.W. 248th Street and to the East by S.W. 87th Avenue. Adjacent to the East edge of the landfill is the Biscayne Bay. The Black Creek Canal, a tributary of the Black Creek, runs along the northern edge of the landfill. This landfill is owned and operated by the Miami-Dade County Department of Solid Waste Management (DSWM). A Site Map with monitoring well locations is shown in **Figure 1**.

SITE BACKGROUND

The South Dade Landfill is a 320-acre Class I Municipal Solid Waste (MSW) facility owned and operated by Miami-Dade County. The disposal area consists of five cells, designated as Cells 1 through 5. Cells 1 and 2 have approximately 92 acres of combined footprint area and were in use from 1978 until October 1988, and closure activities were completed in August 1997. Cells 1 and 2 have an active landfill gas (LFG) collection system with a control flare and a groundwater remediation interceptor trench is located to the east and south. The water recovered from the interceptor trench is pumped into the leachate collection system which is treated and discharged to the adjacent Miami-Dade County Wastewater Treatment Plant. Cell 3 covers 46 acres and was in use from 1986 to 2008, and closure activities were completed in February 2011. Cell 3 has a leachate collection system and an active LFG collection system which is connected to the onsite flare. Cell 4 was constructed in 1994, consists of approximately 60 acres, began accepting waste in 2003, and continues to be an active cell. Cell 4 has a leachate collection system and an active LFG collection system which is also connected to the onsite flare station. Cell 5, with a permitted footprint area of 46 acres, is also in active service.

The facility has a 54-acre wetland area for stormwater management, a stormwater retention lake with an approximate area of 1.4 acres, and landfill offices and a transfer station with an area of approximately 1.15 acres.

WATER QUALITY MONITORING SYSTEM

Groundwater Monitoring Program

The Biscayne Aquifer extends throughout Miami-Dade County northward into Broward and Palm Beach Counties, thus making it a sole source of water for the southeastern Florida residents. This aquifer is a highly transmissive wedge-shaped body of limestone, sandstone, and sand that yields abundant quantities of high-quality groundwater for municipal supply and agricultural use. However, the limestone of this vital aquifer outcrops in many areas. Therefore, the highly porous and permeable Biscayne Aquifer is very susceptible to contamination from a wide variety of sources. The potential for contamination is particularly great in the intensively developed eastern coastal ridge where 90 percent of population resides.

For several decades, Miami-Dade County water-resource planners and managers have been actively engaged in protecting this vital water resource from degradation. Landfills are potential point sources of groundwater contamination caused by the biochemical decomposition (decay) of solid waste and subsequent leachate generation. The severity of contamination depends upon the amount and type of refuse, its degrees of compaction, the amount of water in contact with it and the temperature.

The US Department of the Interior in cooperation with the Miami-Dade County Department of Public Works conducted the first Water Quality Sampling Reconnaissance of the South Dade Landfill during 1977-78 (Donald J. McKenzie, Geological Survey. Open-File Report 83-4003). The general purpose of this reconnaissance was to describe water quality conditions of the landfill and nearby area and to assess generally the water quality impact, or potential impact, of solid waste leachate migration from the solid waste disposal facility into contiguous ground and surface water resources.

Sampling results indicated that several water quality characteristics were present in landfill groundwater at significantly higher levels than in either the upgradient or downgradient groundwater. A comparison of the 1977-78 sampling results with the National Primary and Secondary Drinking Water Regulations showed iron, manganese and chloride exceedances in landfill groundwater wells. Lead occasionally exceeded regulations. Ammonia and specific conductance were higher in landfill wells than upgradient or downgradient study area wells. Surface water samples collected in the study area showed high concentrations of sodium, chloride and sulfate indicating saltwater contamination from Biscayne Bay.

The initial monitoring well network was developed in 1979-87 at the South Dade Landfill when Permit SC 13-128625 was issued. That network consisted of five well clusters named S1, S2, S3, S4A, and S5. Each cluster consisted of three monitoring wells: a shallow well approximately 5-8 feet deep, an intermediate well approximately 10 feet deep, and a deeper well approximately 20-23 feet deep. The initial deep well at approximately 60 feet deep was installed as part of the S3 well cluster in 1983 (Metro-Dade DERM Technical Report 88-6). The regular quarterly groundwater sampling program in accordance with the referenced permit was implemented in the 1st Quarter of 1988.

The groundwater monitoring network was completed in 1996 apart from the recently installed well clusters noted below. The network totals 21 well clusters, including the original wells. All clusters have three wells, with respective depths of 15 (10 feet for well S1), 30, and 60 feet. The locations of the monitoring wells are presented in **Figure 1**.

Replacement wells S18R(15), S18R(30), and S18R(60) were installed in September 2019 and the original well cluster S18 was decommissioned in February 2020. Detection well clusters S20 and S21 were installed in September 2019. Well S12(15) was recently cleared of an obstruction (tree roots) and redeveloped. This work was performed by Wingerter Laboratories Inc. on July 31, 2023.

Per Florida Department of Environmental Protection (FDEP) Permit Number 0126800-010-SC/0126800-011-S0, Appendix 3, Table 1 – Water Quality Sampling Test Site Information, the site consists of three (3) background wells, twenty-three (23) compliance wells, nine (9) intermediate wells and twenty eight (28) detection wells.

- The shallow monitoring zone, at a depth of approximately 10 to 15 feet below grade, is monitored by wells S1(10), S1(15), S2(15) S3(15), S4(15), S5(15), S6(15), S7(15), S8(15), S9(15), S10(15), S11(15), S12(15), S13(15), S14(15), S15(15) S16(15), S17(15), S18R(15), S19(15), S20(15), and S21(15).

- The middle monitoring zone, at a depth of approximately 30 feet below grade, is monitored by wells S2(30), S3(30), S4(30), S5(30), S6(30), S7(30), S8(30), S9(30), S10(30), S11(30), S12(30), S13(30), S14(30), S15(30), S16(30), S17(30), S18R(30), S19(30), S20(30), and S21(30).

- The deep groundwater monitoring zone, at a depth of approximately 60 feet below grade, is monitored by wells S1(60), S2(60), S3(60), S4(60), S5(60), S6(60), S7(60), S8(60), S9(60), S10(60), S11(60), S12(60), S13(60), S14(60), S15(60), S16(60), S17(60), S18R(60), S19(60), S20(60), and S21(60).

- Monitoring wells S1(10), S1(15), S1(60) are designated as the background wells northwest of Cell 5 of the South Dade Landfill.

The groundwater at the facility is typically sampled semiannually in January and July for the water quality parameters listed in FDEP Permit Number 0126800-010-SC/0126800-011-S0 (including modification 0126800-012-S0-MM), Appendix 3, Section II. The results presented in this report are submitted for the second 2023 semiannual groundwater monitoring event performed in July. This report additionally presents a discussion of the results from the five most recent semiannual groundwater sampling events, including the July 2023 data.

Surface Water Monitoring Program

Six surface water monitoring locations (SSW-1, SSW-2, SSW-3, SSW-4, SSW-5, and SSW-6) have been established for the South Dade Landfill. The monitoring locations are within canals and a bay along the site boundaries of the landfill, including the Black Creek Canal. Their locations are presented in **Figure 1**. The Black Creek Canal generally flows to the east, therefore, SSW-1 represents an upstream location by the northwestern corner of the site.

WATER QUALITY SAMPLING

Five routine semiannual monitoring events were performed at the site during this reporting period (from July 2021 to July 2023). Groundwater samples were obtained from most of the active, on-site monitoring wells during each of these monitoring events. Surface water samples were also collected from the respective monitoring locations during each event.

All sampling and sample analysis was performed by Pace Analytical Laboratories (Pace) of Pompano Beach, Florida, a NELAP-FDEP Certified Laboratory, in accordance with FDEP Quality Assurance Rules (Chapter 62-160, FAC) and FDEP Standard Operating Procedures (DEP-SOP-001/01).

All fieldwork, sampling methodologies, data evaluation, data quality assurance / quality control, and chemical analyses were reportedly conducted in accordance with the site's WQMP, Rule 62-701.510, FAC, Chapter 62-160, FAC (e.g., FDEP sampling SOPs), and the facility's operating permit.

SEMIANNUAL WATER QUALITY MONITORING REPORT SCOPE

This Semiannual Monitoring Report summarizes and interprets the water quality monitoring results and water level measurements collected during the July 2023 monitoring event. In accordance with the requirements of Rule 62-701.510(8)(a), FAC, this Report contains the following:

a. Cover letter;
b. Summary of exceedances and sampling problems, if any (e.g., variation from SOP field criteria);
c. Conclusions and recommendations;
d. Groundwater contour maps, constructed on measurements made with one tidal cycle;
e. Chain of custody forms;
f. Water levels, water elevation table;
g. Water Quality Monitoring Certification using Form Rule 62-701.900(31), FAC;
h. Appropriate information using the Groundwater Sampling Log, Form FD 9000-24 (DEP-SOP-001/01); and,
i. Laboratory and Field EDDs and error logs, as applicable.

TECHNICAL REPORT SCOPE

This Technical Report on Water Quality summarizes and interprets the water quality monitoring results and water level measurements collected during the semiannual monitoring events from July 2021 through July 2023. In accordance with the requirements of Rule 62-701.510(8)(b), FAC, this Report contains the following:

1. Tabular displays of any data which shows that a monitoring parameter has been detected, and graphical displays of any detected leachate key indicator parameters (such as pH, specific conductance, total dissolved solids (TDS), total organic carbon (TOC), sulfate, chloride, sodium, and iron), including hydrographs for all monitoring wells;
2. Trend analyses of any monitoring parameters consistently detected;
3. Comparisons among shallow, middle and deep zone wells;
4. Comparisons between background water quality and the water quality in compliance wells;
5. Correlations between related parameters, such as total dissolved solids and specific conductance;
6. Discussion of erratic and/or poorly correlated data;
7. An interpretation of the groundwater contour maps, including an evaluation of groundwater flow rates; and,
8. An evaluation of the adequacy of the water quality monitoring frequency and sampling locations based upon site conditions.

2 SEMIANNUAL WATER QUALITY MONITORING REPORT

SEMIANNUAL MONITORING EVENT

Water levels were measured in most of the groundwater monitoring wells during the July 2023 monitoring event. The collected water level results and groundwater contour maps are presented in **Appendix A**. Review of the groundwater elevations revealed a groundwater flow direction generally to the east across most of the site. The groundwater flow direction at the site appears to be heavily influenced by the adjacent canals. However, review of available regional contour maps in Miami-Dade County (see **Appendix B**, obtained from the United States Geological Survey Open-File Report 02-91, "Average Altitude of the Water Table (1990-99) and Frequency Analysis of Water Levels (1974-99) in the Biscayne Aquifer, Miami-Dade County, Florida", dated 2002) reveal a generally east-southeastern flow direction in this region of the State.

Groundwater sampling logs, analytical reports, and chains of custody from the July 2023 event are presented in **Appendix C**. The results in Automated Data Processing Tool (ADaPT) format have been submitted electronically to the FDEP. The Water Quality Monitoring Certification, FDEP Form 62-701.900(31), prepared in accordance with Rule 62-701.510(8)(a), FAC, is presented in **Appendix D**.

FIELD TEST RESULTS

The samples from monitoring wells S3(30), S5(15), S8(15), S10(15), S10(30), S11(15), S11(30), S17(15), S19(60), and S20(60)were tan in color. The sample from the monitoring well S5(15) was cloudy. The samples from monitoring wells S3(15), S3(60), S14(30), and S18(15) were yellow in color. All other samples were noted as clear in color.

All pH measurements were within the Secondary Drinking Water Standard (SDWS) range of 6.5 to 8.5 Standard Units (SU).

GROUNDWATER RESULTS

A summary of the groundwater monitoring results is presented in **Appendix E** through **Appendix G**. In accordance with Chapter 62-701, FAC, groundwater results were compared to the Primary Drinking Water Standards (PDWS) and SDWS established in Chapter 62-550, FAC and incorporated via reference in Chapter 62-520, FAC. Chapter 62-777, FAC, states that the Cleanup Target Levels (CTLs) are default cleanup criteria that apply to site rehabilitation, and they are not to be construed to create any new water quality standards pursuant to Chapters 62-302, 62-520, or 62-550, FAC (see Rules 62-777.150(7) and 62-777.170(1)(a) and (b), FAC). Furthermore, per Rule 62-701.510(6)(c)(2), FAC, CTLs (only incorporated into Chapter 62-701, FAC via reference to Chapter 62-780, FAC in Rule 62-701.510(7)(c), FAC) are only applicable to solid waste facilities outside of the zone of discharge. Therefore, comparison of the water quality results to CTLs is not applicable and is not generally provided in this report.

Exceedances of the PDWS were identified for sodium during this monitoring event. Exceedances of the SDWS identified during this monitoring event included iron, total dissolved solids (TDS) and chloride. Discussions of these exceedances are presented in the following subsections.

Sodium

Laboratory test results from the groundwater samples indicate that the PDWS of 160 mg/L for sodium was exceeded in 44 of the 63 groundwater monitoring wells sampled during the July 2023 event. Sodium results have historically been high at this site due to its close proximity to, and being tidally influenced by, the saline waters of Biscayne Bay, i.e., saltwater intrusion. In general, high sodium results are confirmed by the high conductivity, chloride, and TDS results, which reflects the high salinity in these wells. This determination is further supported by the higher concentrations of these parameters in the deeper wells. Sodium exceedances were previously reported to the FDEP.

Chloride

Laboratory test results from the groundwater samples indicate that the SDWS of 250 mg/L for chloride was exceeded in 44 of the 63 groundwater monitoring wells sampled during the July 2023 event. As discussed above, the chloride concentrations have historically been above the SDWS at this site. The results for this monitoring event were generally consistent with historical data. Chloride results are historically high at this site due to its close proximity to, and being tidally influenced by, the saline waters of Biscayne Bay, i.e. saltwater intrusion. In general, high chloride results are confirmed by the high conductivity, TDS, and sodium results, which reflects the high salinity in these wells. This determination is further supported by the higher concentrations of these parameters in the deeper wells. Chloride exceedances were previously reported to the FDEP.

Total Dissolved Solids

Laboratory test results from the groundwater samples indicate that the SDWS of 500 mg/L for TDS was exceeded in 57 of the 63 groundwater monitoring well sampled during the July 2023 event. TDS results are historically high at this site due to its close proximity to, and being tidally influenced by, the saline waters of Biscayne Bay, i.e. saltwater intrusion. In general, high TDS results are confirmed by the high conductivity, chloride, and sodium results, which reflects the high salinity in these wells. This determination is further supported by the higher concentrations of these parameters in the deeper wells. TDS exceedances were previously reported to the FDEP.

Iron

Laboratory test results from the groundwater samples indicate that the SDWS of 0.3 mg/L for iron was exceeded in 23 of 63 groundwater monitoring wells located at the facility. As presented in **Appendix F**, the iron concentrations at the site have historically been above the SDWS. Iron exceedances were previously reported to the FDEP. The iron concentrations detected at the site during this monitoring event were generally consistent with historical data, and the highest iron concentrations were generally found in the deep wells (indicating the detections are not related to a landfill impact).

It is suspected that iron is a naturally occurring metal in this area, associated with naturally occurring particulates in soil. This conclusion is supported by the Florida Geological Survey Special Publication No. 34, Florida's Ground Water Quality Monitoring Program, Background Hydrogeochemistry, dated 1992. According to this publication, seventy-five percent of groundwater samples collected statewide from the surficial aquifer system exceeded the SDWS for iron. Most of the samples that exceeded the criterion came from the South Florida Water Management District (SFWMD). Seventy percent of groundwater samples collected from the surficial aquifer system in the SFWMD exceeded the SDWS. The median iron concentration in the SFWMD was 0.88 mg/L, while the upper quartile concentration

was 2.58 mg/L. Overall, concentrations within the SFWMD ranged from below detection limits (<0.01 mg/L) to 41.50 mg /L.

In addition, the Miami-Dade County Department of Regulatory and Economic Resources (DRER) performed a study of background iron concentrations in shallow groundwater throughout the County. The study, detailed in a DRER memorandum dated 8 December 2005, indicated that the concentrations in the County ranged from 0.011 mg/L to 4.222 mg/L, and the arithmetic mean iron concentration in the County was 0.525 mg/L. Furthermore, the minimum variance unbiased estimate of the mean for the data set was 0.706 mg/L. Department of Environmental Resources Management (DERM) has established this concentration as the accepted background concentration for the County.

Accordingly, elevated iron concentrations are not out of the ordinary within this region.

SURFACE WATER RESULTS

A summary of the surface water monitoring results is presented in **Appendix H**. The results of the surface water samples were compared to the Surface Water Quality Criteria for Predominantly Fresh Waters, Class III: Recreation, Propagation and Maintenance of a Healthy, Well-Balanced Population of Fish and Wildlife (Chapter 62-302.530, FAC). All measured parameters were found to be either in compliance with their standard or below the method detection limit for all the surface water sampling locations, except specific conductance. Exceedances of this field parameter were recorded for all the sampling stations except SSW-1. The highest results were generally detected at sampling station SSW-6, located in the bay east of the site. This area is occupied by a marina, which is likely impacting the water quality.

SEMIANNUAL MONITORING CONCLUSIONS

Elevated concentrations of sodium, chloride, TDS, and iron were detected in many wells at the site. As discussed above, iron is a naturally occurring metal in this area, associated with naturally occurring particulates in soil and the sodium, chloride, and TDS detections are due to the site's close proximity to, and being tidally influenced by, the saline waters of Biscayne Bay, i.e., saltwater intrusion. This determination is further supported by the higher concentrations of these parameters in the deeper wells.

3 TECHNICAL REPORT

The water quality monitoring results and water level measurements from the routine semiannual groundwater monitoring events from July 2021 through July 2023 were evaluated in this Technical Report.

GROUNDWATER RESULTS

In accordance with Rules 62-701.510(8)(b)(1) and (2), FAC, tabular and graphical displays of any leachate key indicator parameters detected and trend analyses of any consistently detected monitoring parameters are presented in **Appendix I**. Please note that to provide a conservative approach to the graphical interpretations of the groundwater quality at the site, minimum detection limits were utilized for results below the detection limit. Tabular displays of any additional detected monitoring parameters are presented in summary tables provided in **Appendix E** through **Appendix G**. The results presented in **Appendix I** and **Appendix E** through **Appendix G** are discussed in the following paragraphs. Parameters which are not consistently detected, are not leachate key indicator parameters, or are not above a drinking water standard (see below) are not discussed, but are presented in **Appendix E** through **Appendix G**.

As discussed above, in accordance with Chapter 62-701, FAC, groundwater results were compared to the PDWS and SDWS established in Chapter 62-550, FAC and incorporated via reference in Chapter 62-520, FAC. Chapter 62-777, FAC, states that the CTLs are default cleanup criteria that apply to site rehabilitation, and they are not to be construed to create any new water quality standards pursuant to Chapters 62-302, 62-520, or 62-550, FAC (see Rules 62-777.150(7) and 62-777.170(1)(a) and (b), FAC). Furthermore, per Rule 62-701.510(6)(c)(2), FAC, CTLs (only incorporated into Chapter 62-701, FAC via reference to Chapter 62-780, FAC in Rule 62-701.510(6)(c), FAC) are only applicable to solid waste facilities outside of the zone of discharge. Therefore, comparison of the water quality results to CTLs is not applicable and is not generally provided in this Report.

It should further be noted that the FDEP issued a guidance memorandum dated December 3, 2012 that indicates that the ammonia groundwater CTL will no longer be enforced since the Agency for Toxic Substances and Disease Registry (ATSDR) has removed the oral reference dose (RfD) for ammonia from its Minimal Risk Level (MRL) publication, and the United States Environmental Protection Agency (EPA) has also concluded that current data is inadequate to support oral RfD development. These determinations had been the bases for the initial establishment of the ammonia CTL in groundwater.

PRIMARY DRINKING WATER STANDARDS

Sodium

Exceedances of the PDWS for sodium were observed at most of the wells at the site during the monitoring periods covered in this Report, including in the site-designated deep background well. Overall, the results for sodium were generally consistent in most wells over the reporting period. A few increasing trends seemed to be present in the linear trend line graphs, but further evaluation (by the Mann-Kendall statistical test) revealed that none of these were found to be statistically increasing at the 90% confidence level. In addition, a few anomalous results were noted. In most cases, these results returned back down to normal historical levels during the subsequent

monitoring events. The concentration of sodium in well S3(15) spiked during the second 2023 semi-annual monitoring event, with similar spikes in results observed for other key leachate indicator parameters for this well, including chloride and TDS. The results in this well will be closely watched during future monitoring events. As previously discussed, elevated sodium results across the site have been attributed to the site's proximity to, and being tidally influenced by, the saline waters of Biscayne Bay, i.e., saltwater intrusion. In general, high sodium results are confirmed by the high chloride, TDS, and conductivity results, which reflects the high salinity in these wells. This determination is further supported by the higher concentrations of these parameters in the deeper wells.

SECONDARY DRINKING WATER STANDARDS

Chloride

Exceedances of the SDWS for chloride were identified at most of the wells during the monitoring periods covered by this Report, including in the site-designated deep background well. Overall, the results for chloride were generally consistent in most wells over the reporting period. A few increasing trends seemed to be present in the linear trend line graphs, but further evaluation (by the Mann-Kendall statistical test) revealed that none of these were found to be statistically increasing at the 90% confidence level. In addition, a few anomalous results were noted. In most cases, these results returned back down to normal historical levels during the subsequent monitoring events. The concentration of chloride in well S3(15) spiked during the second 2023 semi-annual monitoring event, with similar spikes in results observed for other key leachate indicator parameters for this well, including sodium and TDS. The results in this well will be closely watched during future monitoring events. As previously discussed, elevated chloride results have been attributed to saltwater intrusion, and similar results were noted for sodium, TDS, and conductivity. This determination is further supported by the higher concentrations of these parameters in the deeper wells.

Total Dissolved Solids

Concentrations of TDS were identified above the SDWS in 61 of the 63 monitoring wells at the site for the monitoring periods covered by this Report, including in all three site-designated hydraulically upgradient background wells. Overall, the results for TDS were generally consistent in most wells over the reporting period. A few increasing trends seemed to be present in the linear trend line graphs, but further evaluation (by the Mann-Kendall statistical test) revealed that none of these were found to be statistically increasing at the 90% confidence level. In addition, a few anomalous results were noted. In most cases, these results returned back down to normal historical levels during the subsequent monitoring events. The concentration of TDS in well S3(15) spiked during the second 2023 semi-annual monitoring event, with similar spikes in results observed for other key leachate indicator parameters for this well, including sodium and chloride. The results in this well will be closely watched during future monitoring events. As previously discussed, elevated TDS results have been attributed to saltwater intrusion, and similar results were noted for sodium, chloride, and conductivity. This determination is further supported by the higher concentrations of these parameters in the deeper wells.

Iron

Detectable concentrations of iron were identified above the SDWS in 34 of 63 wells at the site for the monitoring periods covered by this Report, including in the site-designated hydraulically upgradient deep background well. As presented in the graphs in Appendix I, the iron concentrations in most wells at the site were relatively consistent for this reporting period. A few increasing trends seemed to be present in the linear trend line graphs but further evaluation (by the Mann-Kendall statistical test) revealed that only well S19(30) was found to be statistically increasing at the 90% confidence level. However, as discussed in Section 2 of the Report, elevated iron concentrations are not out of the ordinary within this region. It should also be noted that the highest iron concentrations at the site have been detected in the deep wells at the site, further suggesting that they are not related to the landfill impacts.

ADDITIONAL LEACHATE KEY INDICATOR PARAMETERS

Specific Conductivity

As presented in the graphs in **Appendix I**, the specific conductivity data in most wells were generally consistent over this reporting period. A few increasing trends seemed to be present in the linear trend line graphs, but further evaluation (by the Mann-Kendall statistical test) revealed that none of these were found to be statistically increasing at the 90% confidence level. In addition, a few anomalous results were noted. In most cases, these results returned back down to normal historical levels during the subsequent monitoring events. As previously discussed, elevated conductivity results have been attributed to saltwater intrusion, and similar results were noted for sodium, chloride and TDS. This determination is further supported by the higher concentrations of these parameters in the deeper wells.

Ammonia

Detectable concentrations of ammonia were identified in all of the monitoring wells at the site for the monitoring periods covered by this Report. The graphs in **Appendix I** show that the results for ammonia were generally consistent in most wells for this reporting period. A few increasing trends seemed to be present in the linear trend line graphs, but further evaluation (by the Mann-Kendall statistical test) revealed that none of these were found to be statistically increasing at the 90% confidence level. In addition, a few anomalous results were noted. In most cases, these results returned back down to normal historical levels during the subsequent monitoring events. Also, the elevated ammonia concentrations observed in wells S17(15) and S18R(15) appear to be trending down. This trend comparative to the other wells at the site was not observed for the other key leachate indicator parameters, such as sodium, chloride, and TDS.

Field pH

The field pH values measured at the site for the monitoring periods covered by this Report are presented in the graphs in **Appendix I**. All pH values were within the acceptable SDWS range of 6.5 - 8.5 pH units. No significant trends were noted.

GROUNDWATER CONTOUR MAP EVALUATION

Water levels were measured in most of the groundwater monitoring wells for the monitoring periods covered by this Report. The water elevation data is summarized in the tables included in **Appendix A**. Hydrographs for the shallow, middle/intermediate and deep wells over the last two and a half years are also included in **Appendix A**. The graphs show that the measured water level data fluctuated greatly over this time period, likely due to the site's proximity to Biscayne Bay.

The groundwater contours for each of these semiannual events are also presented in **Appendix A**. Based on these figures, the groundwater flow direction in the shallow, middle/intermediate and deep zones has been convoluted, and an evaluation of groundwater flow velocity was not performed. As discussed in detail in Section 2, it is likely that the groundwater flow direction at the site is being heavily influenced by the adjacent canals. However, review of available regional contour maps in Miami-Dade reveal a generally east-southeastern flow direction in this region of the State. Therefore, the background well locations appear to be properly sited.

SURFACE WATER ANALYTICAL RESULTS

Six surface water monitoring locations (SSW-1, SSW-2, SSW-3, SSW-4, SSW-5, and SSW-6) have been established for the South Dade Landfill. The monitoring locations are within canals and a bay around the property boundaries, including the Black Creek Canal. Their locations are presented in **Figure 1**. The Black Creek Canal generally flows to the east, therefore, SSW-1 represents an upstream location by the northwestern corner of the site.

The results of the surface water samples were compared to the Surface Water Quality Criteria for Predominantly Fresh Waters, Class III: Recreation, Propagation and Maintenance of a Healthy, Well-Balanced Population of Fish and Wildlife (Chapter 62-302.530, FAC). Review of the results revealed levels of dissolved oxygen (DO) above the criterion (greater than 5 mg/L) at various times at all six locations. Except at SSW-1, specific conductance values greater than 1275 µmhos/cm were identified at all other surface water sample locations during the monitoring periods covered by this Report. The highest results were generally detected at location SSW-6, located in the bay east of the site. This area is occupied by a marina, which is likely impacting the water quality.

ADEQUACY OF AVAILABLE DATA

Based on the data presented in this Report and the current monitoring locations, there appears to be sufficient data to evaluate the water quality at the site.

SUMMARY

Concentrations of sodium, chloride and TDS above the respective criteria were commonly identified in most of the wells for this reporting period. These results have been attributed to the site's proximity to, and being tidally influenced by, the saline waters of Biscayne Bay, i.e., saltwater intrusion. This determination is further supported by the higher concentrations of these parameters in the deeper wells.

Also, concentrations above the iron SDWS were identified in most of the monitoring wells at the site for this reporting period. It is believed that these concentrations are at least partially naturally occurring and are a regional issue, based on the elevated iron concentrations in the hydraulically upgradient background well cluster and on regional iron data.

Several of the surface water samples collected during this reporting period exhibited exceedances for specific conductance . The highest results were generally detected at location SSW-6, located in the bay east of the site. This area is occupied by a marina, which is likely impacting the surface water quality.

Based on the data included in this report, no changes to the monitoring plan are recommended at this time.

MIAMI-DADE DEPARTMENT OF SOLID WASTE MANAGEMENT
TECHNICAL SERVICES AND ENVIRONMENTAL AFFAIRS DIVISION

Table 1
GROUNDWATER MONITORING RESULTS - GENERAL CHEMISTRY PARAMETERS

SITE: ***South Dade Landfill***
EVENT: ***2nd Semiannual Monitoring 2023***
LABORATORY: ***Pace Analytical Laboratory***
SAMPLED BY: ***Pace Analytical Laboratory***

Well	Sampling Date	Turbidity NTU	D.O. mg/L	Conductivity uS/cm	Temp. °C	pH S.U.	Color/Sheen	TDS mg/L	Nitrate mg/L	Chloride mg/L	Ammonia (N) mg/L
S-1 (10)	7/17/2023	1.97	0.45	1,102	27.90	7.03	Clear	596	<0.025	173	0.84
S-1 (15)	7/17/2023	2.60	0.20	1,118	27.90	7.04	Clear	630	<0.025	181	0.73
S-1 (60)	7/17/2023	2.09	0.31	9,799	27.30	7.07	Clear	5,000	<0.025	3,050	0.72
S-2 (15)	7/14/2023	2.10	0.18	735	30.70	6.91	Clear	393	<0.025	37.3	1.80
S-2 (30)	7/14/2023	2.14	0.14	3,198	30.60	6.94	Clear	2,060	<0.025	795	2.60
S-2 (60)	7/18/2023	2.92	0.23	16,257	30.00	7.00	Clear	9,680	<0.025	4,750	0.47
S-3 (15)	7/28/2023	19.20	0.42	667	29.60	7.20	Yellow	11,400	<0.025	5,540	5.9
S-3 (30)	7/28/2023	6.96	1.49	18,117	29.30	7.14	Tan	455	<0.025	18.8	0.49
S-3 (60)	7/28/2023	0.94	0.31	1,131	28.80	7.08	Yellow	666	<0.025	106	4.6
S-4 (15)	9/7/2023	2.91	0.10	901	29.40	7.22	Tan	504	<0.025	72.1	4.1
S-4 (30)	7/19/2023	13.50	0.54	2,424	29.60	7.63	Clear	1,440	0.035	622	8.1
S-4 (60)	7/19/2023	0.42	0.43	26,642	27.00	7.36	Clear	17,100	0.2	8,890	1.1
S-5 (15)	7/17/2023	25.80	0.19	2,472	31.70	6.81	Cloudy	1,330	<0.025	580	0.59
S-5 (30)	7/17/2023	0.44	0.27	7,947	31.10	7.00	Clear	5,540	<0.025	2,140	0.93
S-5 (60)	7/17/2023	0.03	0.11	42,741	31.90	6.87	Clear	23,600	<0.025	18,000	0.37
S-6 (15)	7/17/2023	1.98	0.19	903	28.50	6.93	Clear	523	<0.025	90.8	1.40
S-6 (30)	7/17/2023	1.64	0.48	1,555	27.70	6.97	Clear	1,780	0.11	682	1.20
S-6 (60)	7/17/2023	1.76	0.35	1,107	27.30	6.97	Clear	7,760	<0.025	3,240	0.10
S-7 (15)	7/24/2023	2.41	0.28	983	30.40	6.93	Clear	506	<0.025	60.1	15.1
S-7 (30)	7/18/2023	3.33	0.36	2,137	27.40	7.03	Clear	1,280	<0.025	563	1.9
S-7 (60)	7/17/2023	2.13	0.21	7,914	28.10	6.92	Clear	5,000	0.08	2,160	<0.035
S-8 (15)	9/7/2023	1.28	0.10	756	28.80	7.28	Tan	414	<0.025	56.0	8.6
S-8 (30)	9/7/2023	0.83	0.65	4,406	28.10	7.44	Clear	2,470	<0.025	1,180	1.2
S-8 (60)	9/7/2023	0.88	0.16	36,922	27.80	7.31	Clear	25,500	0.044	13,300	0.31
S-9 (15)	7/19/2023	1.96	0.25	897	25.80	7.10	Clear	519	<0.025	112	0.24
S-9 (30)	7/19/2023	2.24	0.88	14,401	25.80	7.08	Clear	9,720	<0.025	335	0.53
S-9 (60)	7/19/2023	2.18	0.52	1,058	30.30	7.09	Clear	574	<0.025	8,350	5
S-10 (15)	7/19/2023	0.18	0.91	927	26.90	7.16	Tan	567	<0.025	106	4.8
S-10 (30)	7/19/2023	0.24	1.05	3,185	28.00	7.39	Tan	1,970	<0.025	885	23.6
S-10 (60)	7/19/2023	0.24	0.23	36,542	27.00	7.41	Clear	18,100	<0.025	13,700	2.2
S-11 (15)	7/19/2023	5.64	0.80	609	27.20	7.25	Tan	373	<0.025	26.8	2.2
S-11 (30)	7/18/2023	1.15	0.39	15,625	28.20	7.46	Tan	16,200	<0.025	6,480	16.5
S-11 (60)	7/18/2023	1.24	0.65	45,839	28.00	7.41	Clear	24,700	0.14	17,800	0.12
S-12 (15)	8/3/2023	7.83	1.34	951	26.80	7.09	Clear	572	<0.025	66.3	1.80
S-12 (30)	7/19/2023	2.30	0.25	897	25.80	7.10	Clear	519	<0.025	152	0.24
S-12 (60)	7/19/2023	2.28	0.88	14,401	25.80	7.08	Clear	9,720	<0.025	4,450	0.53
S-13 (15)	7/20/2023	2.81	0.09	1,937	26.90	6.99	Clear	1,090	<0.025	447	1.7
S-13 (30)	7/20/2023	2.49	0.16	2,744	26.70	7.01	Clear	1,770	<0.025	832	1.8
S-13 (60)	7/20/2023	2.76	0.19	29,645	26.00	6.95	Clear	24,000	<0.025	12,200	1.4
S-14 (15)	7/20/2023	3.56	0.95	119	27.60	7.05	Clear	668	<0.025	163	1.6
S-14 (30)	7/20/2023	3.12	0.08	22,047	26.70	6.95	Yellow	15,400	<0.025	7,470	11
S-14 (60)	7/20/2023	2.75	0.59	37,654	26.40	6.94	Clear	27,000	0.043	14,200	1.2
S-15 (15)	7/20/2023	0.40	0.21	1,119	28.00	7.15	Clear	932	<0.025	317	<0.035
S-15 (30)	7/17/2023	0.97	0.08	3,736	27.30	7.40	Clear	2,100	<0.025	1,030	0.51
S-15 (60)	7/17/2023	1.58	0.07	43,315	27.00	7.13	Clear	27,400	<0.025	18,900	0.5
S-16 (15)	7/18/2023	6.51	0.10	1,605	33.30	7.03	Clear	978	<0.025	221	0.067
S-16 (30)	7/18/2023	0.21	0.08	19,957	30.80	7.12	Clear	12,400	<0.025	6,010	4.7
S-16 (60)	7/18/2023	1.06	0.20	46,007	29.60	7.17	Clear	26,600	<0.025	17,900	0.64
S-17 (15)	7/24/2023	0.82	0.40	2,311	30.10	7.14	Tan	1,250	<0.025	410	34.7
S-17 (30)	7/24/2023	1.68	0.10	21,772	29.90	7.25	Clear	14,700	<0.025	6,980	9.4
S-17 (60)	7/24/2023	1.12	0.15	43,110	29.00	7.23	Clear	32,400	<0.025	16,300	0.93
S-18R (15)	7/24/2023	0.76	0.15	3,412	30.30	7.32	Yellow	1,700	<0.025	684	54.4
S-18R (30)	7/24/2023	2.13	0.15	20,005	30.50	7.37	Clear	12,600	<0.025	6,240	9.3
S-18R (60)	7/24/2023	1.43	0.22	43,935	30.40	7.22	Clear	32,000	<0.025	16,300	0.88
S-19 (15)	7/24/2023	3.13	0.17	2,859	29.60	6.98	Clear	1,970	<0.025	782	4.3
S-19 (30)	7/24/2023	2.89	0.13	13,885	29.40	6.97	Clear	9,160	<0.025	4,140	0.91
S-19 (60)	7/24/2023	6.95	0.12	478	29.10	6.97	Tan	306	<0.025	36.8	3.1
S-20 (15)	7/24/2023	3.54	0.19	2,581	28.80	7.05	Clear	1,520	0.04	624	2.2
S-20 (30)	7/24/2023	3.03	0.17	8,464	29.00	7.02	Clear	8,160	0.042	3,910	0.58
S-20 (60)	7/24/2023	3.53	0.30	573	27.60	7.06	Tan	410	<0.025	14.4	0.23
S-21 (15)	7/17/2023	1.86	0.22	313	27.50	6.99	Clear	285	0.45	86.4	0.073
S-21 (30)	7/17/2023	1.58	0.21	8,092	27.10	6.99	Clear	5,200	<0.025	2,580	0.59
S-21 (60)	7/18/2023	3.39	0.92	1,380	27.00	7.02	Clear	1,280	<0.025	251	1.1
MCLs						6.5-8.5 SU SDWS		500 mg/L SDWS	10 mg/L PDWS	250 mg/L SDWS	

Notes:

MCLs = Maxiumum Contaminant Levels

PDWS= Primary Drinking Water Standard

SDWS= Secondary Drinking Water Standard

MIAMI-DADE SOLID WASTE MANAGEMENT DEPARTMENT - TECHNICAL SERVICES AND ENVIRONMENTAL AFFAIRS DIVISION

Table 2. Groundwater Monitoring - Metals

SITE: *SOUTH DADE LANDFILL*
EVENT: *1st SEMIANNUAL MONITORING EVENT OF 2023*

LABORATORY: *Pace Analytical Laboratory*
SAMPLED BY: *Pace Analytical Laboratory*

Well	Sb µg/L	As µg/L	Ba µg/L	Be µg/L	Cd µg/L	Cr µg/L	Co µg/L	Cu µg/L	Fe µg/L	Pb µg/L	Hg µg/L	Ni µg/L	Se µg/L	Ag µg/L	Na mg/L	Tl µg/L	Va µg/L	Zn µg/L
S1(10)	U 0.50	U 0.5	16.2	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	U 25.0	U 2.1	U 0.09	U 1.0	U 3.9	U 1.0	103.0	U 0.11	I 1.2	U 11.0
S1(15)	U 0.50	U 0.5	15.7	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	U 25.0	U 2.1	U 0.09	U 1.0	U 3.9	U 1.0	93.4	U 0.11	I 1.3	U 11.0
S1(60)	U 2.50	U 2.5	104.0	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	526.0	U 2.1	U 0.09	U 1.0	U 3.9	U 1.0	1,720	U 0.53	U 1.0	U 11.0
S2(15)	U 0.50	U 0.5	I 9.2	U 0.17	U 0.33	U 1.7	U 0.96	I 3.1	140.0	U 2.1	U 0.09	U 1.0	U 3.9	U 1.0	32.4	U 0.11	U 1.0	U 11.0
S2(30)	U 0.50	I 0.6	22.0	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	232.0	U 2.1	U 0.09	U 1.0	U 3.9	U 1.0	317	U 0.11	U 1.0	U 11.0
S2(60)	I 0.75	I 0.9	99.8	U 0.17	U 0.33	U 1.7	I 1.50	I 4.5	U 25.0	U 2.1	U 0.09	I 4.2	U 3.9	U 1.0	2,910	I 0.15	I 3.8	U 11.0
S3(15)	U 0.50	2.0	23.5	U 0.17	U 0.33	I 4.9	I 1.20	U 2.6	U 25.0	U 2.1	U 0.09	5.6	U 3.9	U 1.0	244	U 0.11	I 6.7	U 11.0
S3(30)	U 0.50	I 0.5	136.0	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	710.0	U 2.1	U 0.09	I 3.7	U 3.9	U 1.0	3,460	U 0.11	I 6.3	U 11.0
S3(60)	U 0.50	I 0.6	136.0	U 0.85	U 1.60	U 1.7	I 5.5	U 2.6	2460.0	U 10.5	U 0.09	I 23.4	U 19.5	U 5.0	7,790	U 0.11	I 9.3	U 55.0
S4(15)	U 0.50	I 0.8	16.9	U 0.17	U 0.33	I 1.7	U 0.96	U 2.6	428.0	U 2.1	U 0.09	I 3.1	U 3.9	U 1.0	149	U 0.11	I 5.5	U 11.0
S4(30)	U 0.50	U 0.5	20.3	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	66.7	U 2.1	U 0.09	I 3.9	U 3.9	U 1.0	306	U 0.11	I 5.1	U 11.0
S4(60)	U 0.50	U 5.0	121.0	U 0.17	U 0.33	U 1.7	U 4.80	U 2.6	2980.0	U 2.1	U 0.09	I 23.7	U 19.5	U 1.0	8,030	U 0.11	I 10.0	U 11.0
S5(15)	U 0.50	U 0.5	17.4	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	298.0	U 2.1	U 0.09	I 3.7	U 3.9	U 1.0	372	U 0.11	I 2.7	U 11.0
S5(30)	U 0.50	U 0.5	56.2	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	U 25.0	U 2.1	U 0.09	I 4.3	U 3.9	U 1.0	2,290	U 0.11	I 5.7	U 11.0
S5(60)	U 0.50	U 2.5	59.2	U 0.17	U 0.33	U 1.7	U 4.80	U 2.6	619.0	U 2.1	U 0.09	U 1.0	U 19.5	U 1.0	8,920	U 0.11	U 5.0	U 11.0
S6(15)	U 0.50	I 0.9	29.4	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	U 25.0	U 2.1	U 0.09	I 1.0	U 3.9	U 1.0	73.1	U 0.11	I 1.2	U 11.0
S6(30)	U 0.50	U 0.5	32.4	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	U 25.0	U 2.1	U 0.09	U 1.0	U 3.9	U 1.0	289	U 0.11	U 1.0	U 11.0
S6(60)	U 0.50	U 0.5	101.0	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	671.0	U 2.1	U 0.09	U 1.0	U 3.9	U 1.0	1,960	U 0.11	U 1.0	U 11.0
S7(15)	U 0.50	U 0.5	19.9	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	43.0	U 2.1	U 0.09	U 1.0	U 3.9	U 1.0	42.0	U 0.11	U 1.0	U 11.0
S7(30)	U 0.50	I 0.9	30.4	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	44.6	U 2.1	U 0.09	U 1.0	U 3.9	U 1.0	358	U 0.11	I 1.5	U 11.0
S7(60)	U 0.50	6.4	77.0	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	674.0	U 2.1	U 0.09	U 1.0	U 3.9	U 1.0	1,560	U 0.11	U 1.0	U 11.0
S8(15)	U 0.50	6.3	19.8	U 0.17	U 0.33	I 3.2	U 0.96	U 2.6	417.0	U 2.1	U 0.09	I 1.7	U 3.9	U 1.0	44.1	U 0.11	I 2.6	U 11.0
S8(30)	U 0.50	U 0.5	27.5	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	U 25.0	U 2.1	U 0.09	U 1.0	U 3.9	U 1.0	519	U 0.11	I 1.5	U 11.0
S8(60)	U 0.50	1.6	124.0	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	2520.0	U 2.1	U 0.09	U 1.0	U 3.9	U 1.0	7,450	U 0.11	U 1.0	U 11.0
S9(15)	U 0.50	I 0.6	11.8	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	U 25.0	U 2.1	I 0.17	U 1.0	U 3.9	U 1.0	104.0	U 0.11	I 2.2	U 11.0
S9(30)	U 0.50	U 0.5	16.5	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	U 25.0	U 2.1	I 0.10	U 1.0	U 3.9	U 1.0	201	U 0.11	I 1.5	U 11.0
S9(60)	U 0.50	1.1	107.0	U 0.17	U 0.33	U 1.7	U 4.80	U 13.0	1240.0	U 2.1	I 0.10	U 5.0	U 3.9	U 1.0	7,680	U 0.11	U 5.0	U 11.0
S10(15)	U 0.50	1.1	18.7	U 0.17	U 0.33	I 2.7	I 1.20	U 2.6	U 25.0	U 2.1	U 0.09	I 4.6	U 3.9	U 1.0	258	U 0.11	I 8.2	U 11.0
S10(30)	U 0.50	U 0.5	26.8	U 0.17	U 0.33	I 2.1	I 1.00	U 2.6	U 25.0	U 2.1	U 0.09	I 5.0	U 3.9	U 1.0	500	U 0.11	I 8.0	I 13.2
S10(60)	U 0.50	U 5.0	87.3	U 0.17	U 0.33	U 8.5	U 4.80	U 2.6	2610.0	U 10.5	U 0.09	I 24.0	U 19.5	U 1.0	9,550	U 0.11	I 10.2	U 11.0
S11(15)	U 0.50	I 0.8	22.4	U 0.17	U 0.33	I 2.9	I 0.98	U 2.6	343.0	U 2.1	U 0.09	I 3.3	U 3.9	U 1.0	190	U 0.11	I 7.3	U 11.0
S11(30)	U 0.50	U 5.0	109.0	U 0.17	U 0.33	U 1.7	I 1.10	U 2.6	108.0	U 2.1	U 0.09	5.0	I 4.8	U 1.0	4,580	U 0.11	14.2	U 11.0
S11(60)	U 0.50	U 5.0	77.5	U 0.17	U 0.33	U 1.7	U 4.80	U 2.6	1840.0	U 2.1	U 0.09	I 24.4	U 19.5	U 1.0	9,400	U 0.11	I 11.1	U 11.0
S12(15)	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
S12(30)	U 0.50	U 0.5	18.3	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	U 25.0	U 2.1	U 0.09	U 1.0	U 3.9	U 1.0	127.0	U 0.11	U 1.0	U 11.0
S12(60)	U 0.50	U 0.5	135.0	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	700.0	U 2.1	U 0.09	U 1.0	U 3.9	U 1.0	3,260	U 0.11	U 1.0	U 11.0
S13(15)	U 0.50	U 0.5	13.2	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	U 25.0	U 2.1	U 0.09	I 2.6	U 3.9	U 1.0	206	U 0.11	I 3.8	U 11.0
S13(30)	U 0.50	U 0.5	22.2	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	U 25.0	U 2.1	U 0.09	I 3.9	U 3.9	U 1.0	395	U 0.11	I 3.5	U 11.0
S13(60)	U 0.50	U 5.0	104.0	U 0.17	U 0.33	U 1.7	U 4.80	U 2.6	3570.0	I 2.1	U 0.09	I 22.8	U 19.5	U 1.0	8,190	U 0.11	I 11.0	U 11.0
S14(15)	U 0.50	U 0.5	12.7	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	U 25.0	U 2.1	U 0.09	I 2.9	U 3.9	U 1.0	219	U 0.11	I 6.9	U 11.0
S14(30)	U 0.50	U 5.0	103.0	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	I 37.0	U 2.1	U 0.09	5.4	U 3.9	U 1.0	3,980	U 0.11	13.4	U 11.0
S14(60)	U 0.50	U 5.0	80.5	U 0.17	U 0.33	U 1.7	U 4.80	U 2.6	2300.0	U 2.1	U 0.09	25.1	U 3.9	U 1.0	8,580	U 0.11	I 10.6	U 11.0
S15(15)	U 0.50	U 0.5	13.6	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	U 25.0	U 2.1	U 0.09	I 2.8	U 3.9	U 1.0	152	U 0.11	I 1.8	U 11.0
S15(30)	U 0.50	U 0.5	38.1	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	U 25.0	U 2.1	U 0.09	I 4.6	U 3.9	U 1.0	821	U 0.11	I 3.3	U 11.0
S15(60)	U 0.50	U 0.5	70.1	U 0.17	U 0.33	U 1.7	U 4.80	U 2.6	1420.0	U 2.1	U 0.09	U 1.0	U 19.5	U 1.0	8,510	U 0.11	U 5.0	U 11.0
S16(15)	U 1.00	U 1.0	12.4	U 0.17	U 0.33	U 1.7	U 0.96	I 3.1	115.0	U 2.1	U 0.09	I 3.0	U 3.9	U 1.0	140	U 0.21	I 3.3	U 11.0
S16(30)	U 0.50	U 2.5	78.2	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	U 25.0	U 2.1	U 0.09	I 3.3	U 3.9	U 1.0	4,530	U 0.11	11.9	U 11.0
S16(60)	U 0.50	U 2.5	75.1	U 0.17	U 0.33	U 1.7	U 4.80	U 2.6	2100.0	U 2.1	U 0.09	U 1.0	U 3.9	U 1.0	9,070	U 0.11	U 5.0	U 11.0
S17(15)	U 1.00	U 1.0	25.0	U 0.17	U 0.33	7.9	I 2.40	U 2.6	U 25.0	U 2.1	U 0.09	6.7	U 3.9	U 1.0	528	U 0.21	24.8	U 11.0
S17(30)	U 1.00	U 1.0	121.0	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	U 25.0	U 2.1	U 0.09	I 2.4	U 3.9	U 1.0	4,820	U 0.21	11.5	U 11.0
S17(60)	U 0.50	U 2.5	84.3	U 0.17	U 0.33	U 1.7	U 4.80	U 2.6	2980.0	U 2.1	U 0.09	U 1.0	U 19.5	U 1.0	9,340	U 0.11	U 5.0	U 11.0
S18R(15)	U 1.00	U 1.0	21.3	U 0.17	U 0.33	8.9	I 3.20	I 3.0	I 31.2	U 2.1	U 0.09	7.7	U 3.9	U 1.0	541	U 0.21	17.8	U 11.0
S18R(30)	U 0.50	U 2.5	123.0	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	I 25.3	U 2.1	U 0.09	I 2.5	U 3.9	U 1.0	4,120	U 0.11	10.4	U 11.0
S18R(60)	U 0.50	U 2.5	83.9	U 0.17	U 0.33	U 1.7	U 4.80	U 2.6	2970.0	U 2.1	U 0.09	U 1.0	U 3.9	U 1.0	9,300	U 0.11	U 5.0	U 11.0
S19(15)	U 0.50	U 0.5	38.9	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	U 25.0	U 2.1	U 0.09	I 4.0	U 3.9	U 1.0	358	U 0.11	I 3.0	U 11.0
S19(30)	U 0.50	U 0.5	128.0	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	599.0	U 2.1	U 0.09	I 4.4	U 3.9	U 1.0	2,250	U 0.11	I 5.3	U 11.0
S19(60)	U 0.50	I 0.8	11.6	U 0.17	U 0.33	U 1.7	U 0.96	I 3.0	1030.0	U 2.1	U 0.09	I 1.4	U 3.9	U 1.0	14.4	U 0.11	I 1.2	U 11.0
S20(15)	U 0.50	U 0.5	27.1	U 0.17	U 0.33	U 1.7	U 0.96	I 3.4	I 28.6	U 2.1	U 0.09	I 3.7	U 3.9	U 1.0	335.0	U 0.11	I 2.5	U 11.0
S20(30)	U 0.50	I 0.7	109.0	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	1090.0	U 2.1	U 0.09	I 4.4	U 3.9	U 1.0	1,880	U 0.11	I 4.8	U 11.0
S20(60)	U 0.50	U 0.5	139.0	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	1140.0	U 2.1	U 0.09	I 2.3	U 3.9	U 1.0	3,570	U 0.11	I 7.5	U 11.0
S21(15)	U 0.50	3.9	13.0	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	1090.0	U 2.1	U 0.09	U 1.0	U 3.9	U 1.0	48.4	U 0.11	I 1.1	U 11.0
S21(30)	U 0.50	U 0.5	99.4	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	475.0	I 2.1	U 0.09	U 1.0	U 3.9	U 1.0	1,490	U 0.11	I 1.0	U 11.0
S21(60)	U 0.50	I 0.9	152.0	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	1560.0	U 2.1	U 0.09	U 1.0	U 3.9	U 1.0	2,960	U 0.11	U 1.0	U 11.0
MCLs	6.0 PDWS	10.0 PDWS	2,000 PDWS	4.0 PDWS	5.0 PDWS	100 PDWS	140 GCTL	1,000 SDWS	300 SDWS	15.0 PDWS	2.0 PDWS	100 PDWS	50 PDWS	100 SDWS	160 PDWS	2.0 PDWS	49 GCTL	5,000 SDWS

MIAMI-DADE SOLID WASTE MANAGEMENT DEPARTMENT - TECHNICAL SERVICES AND ENVIRONMENTAL AFFAIRS DIVISION

Table 1. Groundwater Monitoring - General Parameters

SITE: *South Dade Landfill* **LABORATORY:** *Pace Analytical*

EVENT: *2nd Semiannual Monitoring 2022* **SAMPLED BY:** *Pace Analytical*

Well	Sampling Date	Turbidity *NTU*	DO *mg/L*	S. Cond. *umhos/cm*	Temp. *Deg. C*	pH *pH units*	Color / Sheen	TDS *mg/L*	NO_3^-- N *mg/L*	Cl^- *mg/L*	$NH3^+$- N *mg/L*
S1(10)	07/20/22	5.45	0.37	762	27.5	7.5	Clear	404	I 0.046	108	1.40
S1(15)	07/20/22	4.91	0.38	761	27.1	7.4	Clear	388	I 0.027	104	1.40
S1(60)	07/20/22	3.90	0.38	10,273	25.9	7.3	Clear	5,940	U 0.025	1,500	0.61
S2(15)	07/20/22	4.91	0.51	656	27.4	7.3	Clear	378	I 0.041	41	1.10
S2(30)	07/20/22	4.51	0.34	1,344	28.0	7.5	Clear	746	U 0.025	288	0.70
S2(60)	07/20/22	10.60	0.20	14,270	26.0	7.1	Clear	8,720	U 0.025	4,250	0.48
S3(15)	07/19/22	4.15	0.73	1,497	30.2	7.1	Clear	836	U 0.025	202	16.00
S3(30)	07/19/22	5.15	0.74	16,560	30.3	6.9	Clear	9,820	U 0.025	5,090	4.50
S3(60)	07/19/22	5.35	0.50	37,016	29.8	6.9	Clear	24,000	U 0.025	13,700	4.20
S4(15)	07/21/22	3.21	0.27	1,419	26.6	7.2	Clear	764	0.054	260	4.90
S4(30)	07/21/22	1.86	0.29	1,738	26.4	7.3	Clear	952	U 0.025	350	7.20
S4(60)	07/21/22	3.70	0.40	39,886	26.1	7.1	Clear	22,500	U 0.025	14,600	1.20
S5(15)	07/18/22	16.40	0.15	1,654	27.4	7.7	Clear	886	U 0.025	364	0.35
S5(30)	07/18/22	3.40	0.51	2,779	25.8	7.8	Clear	1,650	U 0.025	701	0.48
S5(60)	07/18/22	2.86	0.15	42,790	25.7	7.0	Clear	32,800	U 0.025	16,700	0.41
S6(15)	07/20/22	3.95	0.31	896	27.6	7.1	Clear	500	U 0.025	83	2.70
S6(30)	07/20/22	3.51	0.34	1,418	26.2	7.5	Clear	750	U 0.025	296	1.10
S6(60)	07/20/22	4.50	0.32	11,125	26.2	7.2	Clear	6,880	0.800	6,670	0.54
S7(15)	07/21/22	1.90	0.30	752	27.5	7.1	Clear	406	U 0.025	50	6.00
S7(30)	07/21/22	2.15	0.30	967	26.5	7.2	Clear	582	I 0.033	129	13.70
S7(60)	07/21/22	1.84	0.31	4,839	26.7	7.4	Clear	3,810	U 0.025	1,750	0.15
S8(15)	07/21/22	4.71	0.29	858	26.4	7.2	Clear	417	U 0.025	55	24.30
S8(30)	07/21/22	2.06	0.29	2,126	25.9	7.4	Clear	1,150	U 0.025	524	1.50
S8(60)	07/21/22	2.67	0.24	31,169	25.9	7.1	Clear	17,500	I 0.028	11,000	0.08
S9(15)	07/21/22	2.51	0.30	976	26.2	7.3	Clear	519	I 0.039	125	6.40
S9(30)	07/21/22	2.96	0.31	1,146	26.9	7.4	Clear	606	U 0.025	205	1.00
S9(60)	07/21/22	2.06	0.23	36,487	25.6	6.9	Clear	20,800	U 0.025	13,200	0.64
S10(15)	07/21/22	2.61	0.30	1,856	25.8	7.3	Clear	994	I 0.040	380	11.90
S10(30)	07/21/22	2.40	0.31	3,618	25.4	7.3	Clear	2,070	U 0.025	928	9.50
S10(60)	07/21/22	3.10	0.32	46,073	25.4	7.1	Clear	30,600	I 0.028	17,200	0.89
S11(15)	07/21/22	3.62	0.46	1,045	29.9	7.2	Clear	576	U 0.025	123	10.20
S11(30)	07/21/22	2.15	0.50	12,498	29.4	7.1	Clear	11,300	I 0.030	5,830	18.50
S11(60)	07/21/22	2.50	0.21	48,320	28.5	7.0	Clear	28,000	0.061	18,500	0.61
S12(15)	NS										
S12(30)	07/20/22	4.75	0.28	661	26.3	7.5	Clear	356	U 0.025	81	0.14
S12(60)	07/20/22	3.87	0.21	23,357	25.7	7.1	Clear	13,600	U 0.025	7,730	1.00
S13(15)	07/20/22	3.51	0.35	1,881	25.8	7.5	Clear	1,010	U 0.025	425	0.97
S13(30)	07/20/22	3.51	0.35	2,645	25.2	7.5	Clear	1,390	I 0.046	599	1.20
S13(60)	07/20/22	3.72	0.36	42,085	26.1	7.1	Clear	24,000	U 0.025	15,500	1.10
S14(15)	07/20/22	4.51	0.26	1,733	27.2	7.2	Clear	952	U 0.025	350	3.50
S14(30)	07/20/22	4.35	0.24	13,193	26.2	7.1	Clear	7,240	U 0.025	3,820	10.50
S14(60)	07/20/22	4.30	0.24	48,476	25.6	7.0	Clear	31,300	U 0.025	18,600	0.83
S15(15)	07/18/22	2.91	0.28	1,292	27.0	7.3	Clear	712	U 0.025	247	0.91
S15(30)	07/18/22	3.15	0.24	1,706	26.0	7.5	Clear	976	U 0.025	395	0.21
S15(60)	07/18/22	3.15	0.43	46,925	26.1	6.7	Clear	31,100	U 0.025	18,700	0.44
S16(15)	07/18/22	3.51	0.60	964	27.9	7.4	Clear	29	U 0.025	8	U 0.04
S16(30)	07/18/22	3.40	0.28	10,284	26.3	7.2	Clear	6,200	U 0.025	2,980	3.70
S16(60)	07/18/22	3.24	0.10	43,512	26.2	7.1	Clear	30,200	U 0.025	17,300	0.50
S17(15)	07/18/22	3.15	0.24	3,662	30.4	7.0	Clear	1,840	U 0.025	722	58.30
S17(30)	07/18/22	2.10	0.20	18,092	30.7	7.0	Clear	11,000	U 0.025	5,540	11.10
S17(60)	07/18/22	2.06	0.36	44,081	29.6	7.0	Clear	31,400	U 0.025	17,500	1.20
S18R(15)	07/18/22	2.96	0.24	3,552	29.4	7.3	Clear	1,820	U 0.025	740	47.80
S18R(30)	07/17/22	2.50	0.21	9,731	29.5	7.1	Clear	5,940	I 0.031	2,740	0.79
S18R(60)	07/18/22	1.95	0.18	47,566	24.8	7.1	Clear	33,400	I 0.032	18,400	0.90
S19(15)	07/19/22	5.90	0.40	703	27.6	7.3	Clear	15,800	U 0.025	9,290	2.40
S19(30)	07/19/22	4.96	0.39	12,677	27.3	7.1	Clear	7,360	I 0.031	3,790	1.00
S19(60)	07/19/22	5.12	0.37	28,309	23.3	7.1	Clear	18,100	U 0.025	9,700	0.99
S20(15)	07/19/22	3.90	0.29	2,726	26.3	7.1	Clear	1,530	U 0.025	665	2.00
S20(30)	07/19/22	4.76	0.29	11,084	25.8	7.1	Clear	6,500	U 0.025	3,240	0.75
S20(60)	07/19/22	6.30	0.30	22,566	25.6	6.9	Clear	13,600	U 0.025	7,290	0.72
S21(15)	07/19/22	4.60	0.31	719	27.3	7.2	Clear	399	I 0.037	55.0	0.49
S21(30)	07/19/22	3.70	0.30	8,746	28.3	7.3	Clear	4,960	U 0.025	2,510	0.58
S21(60)	07/19/22	3.96	0.31	17,730	26.3	7.0	Clear	10,700	U 0.025	5,630	0.36
PDWS: *as per FAC 62-550.310(1)(a)*						6.5 - 8.5 SDWS		500 SDWS	10.0 PDWS	250 SDWS	
SDWS: *as per FAC 62-550.320(1)*											

MIAMI-DADE SOLID WASTE MANAGEMENT DEPARTMENT - TECHNICAL SERVICES AND ENVIRONMENTAL AFFAIRS DIVISIOI

Table 2. Groundwater Monitoring - Metals

SITE: *SOUTH DADE LANDFILL*
EVENT: *2nd SEMIANNUAL MONITORING EVENT OF 2022*

LABORATORY: *Pace Analytical Laboratory*
SAMPLED BY: *Pace Analytical Laboratory*

Well	Sb µg/L	As µg/L	Ba µg/L	Be µg/L	Cd µg/L	Cr µg/L	Co µg/L	Cu µg/L	Fe µg/L	Pb µg/L	Hg µg/L	Ni µg/L	Se µg/L	Ag µg/L	Na mg/L	Tl µg/L	Va µg/L	Zn µg/L
S1(10)	U 0.50	U 0.5	11.6	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	I 31.3	U 4.6	U 0.09	U 2.1	U 3.9	U 1.0	61.4	U 0.11	I 1.6	U 11.0
S1(15)	U 0.50	U 0.5	11.2	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	U 25.0	U 4.6	U 0.09	U 2.1	U 3.9	U 1.0	61.0	U 0.11	I 1.8	U 11.0
S1(60)	U 0.50	I 0.5	97.1	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	563.0	I 7.1	U 0.09	5.3	U 3.9	U 1.0	1,520	U 0.11	I 1.6	U 11.0
S2(15)	U 0.50	1.0	I 9.2	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	I 39.8	U 4.6	U 0.09	U 2.1	U 3.9	U 1.0	25.7	U 0.11	I 1.5	U 11.0
S2(30)	U 0.50	1.5	14.0	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	250.0	U 4.6	U 0.09	I 2.5	U 3.9	U 1.0	146	U 0.11	I 1.4	U 11.0
S2(60)	I 0.56	1.2	89.7	U 0.17	U 0.33	U 1.7	I 1.20	U 2.6	149.0	I 8.2	U 0.09	8.9	U 3.9	U 1.0	2,140	U 0.11	I 5.0	U 11.0
S3(15)	U 0.50	2.1	19.2	U 0.17	U 0.33	5.5	I 1.20	U 2.6	I 37.4	U 4.6	U 0.09	6.9	U 3.9	U 1.0	127	U 0.11	I 5.7	U 11.0
S3(30)	U 0.50	I 0.7	114.0	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	539.0	I 7.6	U 0.09	7.4	U 3.9	U 1.0	2,940	U 0.11	I 3.2	U 11.0
S3(60)	U 0.50	I 0.7	130.0	U 0.17	U 1.60	I 11.4	U 4.8	U 2.6	1330.0	U 2.2	U 0.09	U 10.5	U 19.5	U 1.0	7,120	U 0.11	U 5.0	U 11.0
S4(15)	U 0.50	I 0.6	15.1	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	683.0	U 4.6	U 0.09	I 3.1	U 3.9	U 1.0	139	U 0.11	I 4.4	U 11.0
S4(30)	U 0.50	I 0.5	15.4	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	U 25.0	U 4.6	U 0.09	I 4.1	U 3.9	U 1.0	187	U 0.11	I 4.6	U 11.0
S4(60)	U 0.50	1.6	104.0	U 0.17	U 0.33	U 1.7	I 1.20	U 2.6	2410.0	10.0	U 0.09	8.3	U 3.9	U 1.0	8,070	U 0.11	I 1.5	U 11.0
S5(15)	U 0.50	2.1	11.7	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	911.0	U 4.6	U 0.09	U 2.1	U 3.9	U 1.0	205	U 0.11	U 1.0	U 11.0
S5(30)	U 0.50	U 0.5	21.0	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	U 25.0	U 4.6	U 0.09	U 2.1	U 3.9	U 1.0	395	U 0.11	U 1.0	U 11.0
S5(60)	U 0.50	U 0.5	63.2	U 0.85	U 1.60	U 8.5	U 4.80	U 13.0	153.0	I 30.2*	U 0.09	34.6	U 19.5	U 5.0	8,510	U 0.11	I 9.6	U 55.0
S6(15)	U 0.50	1.1	31.0	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	U 25.0	I 5.0	U 0.09	U 2.1	U 3.9	U 1.0	51.2	U 0.11	I 2.8	U 11.0
S6(30)	U 0.50	U 0.5	15.6	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	U 25.0	U 4.6	U 0.09	U 2.1	U 3.9	U 1.0	150	U 0.11	I 1.4	U 11.0
S6(60)	U 0.50	I 0.6	97.9	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	741.0	I 5.5	U 0.09	5.3	U 3.9	U 1.0	1,600	U 0.11	I 1.5	U 11.0
S7(15)	U 0.50	I 0.5	17.4	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	U 25.0	U 4.6	U 0.09	U 2.1	U 3.9	U 1.0	35.0	U 0.11	U 1.0	U 11.0
S7(30)	U 0.50	3.2	20.2	U 0.17	U 0.33	I 4.4	I 1.10	U 2.6	61.3	U 4.6	U 0.09	5.5	U 3.9	U 1.0	80	U 0.11	I 6.1	U 11.0
S7(60)	U 0.50	7.8	53.2	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	896.0	U 4.6	U 0.09	5.8	U 3.9	U 1.0	1,230	U 0.11	I 1.2	U 11.0
S8(15)	U 0.50	9.9	23.8	U 0.17	U 0.33	7.0	U 0.96	I 3.1	2000.0	U 4.6	U 0.09	I 4.1	U 3.9	U 1.0	44.4	U 0.11	I 3.5	U 11.0
S8(30)	U 0.50	U 0.5	18.5	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	U 25.0	U 4.6	U 0.09	U 2.1	U 3.9	U 1.0	297	U 0.11	I 1.0	U 11.0
S8(60)	U 0.50	1.1	107.0	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	439.0	U 4.6	U 0.09	U 2.1	U 3.9	U 1.0	5,780	U 0.11	U 1.0	U 11.0
S9(15)	U 0.50	1.0	11.2	U 0.17	U 0.33	I 2.4	U 0.96	U 2.6	U 25.0	U 4.6	U 0.09	U 2.1	U 3.9	U 1.0	86.8	U 0.11	I 2.4	U 11.0
S9(30)	U 0.50	U 0.5	11.1	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	U 25.0	U 4.6	U 0.09	I 3.4	U 3.9	U 1.0	113	U 0.11	I 2.1	U 11.0
S9(60)	I 0.82	I 0.9	110.0	U 0.17	U 0.33	U 1.7	I 3.10	U 2.6	98.1	10.2	U 0.09	11.5	U 3.9	U 1.0	6,940	I 0.16	I 2.4	U 11.0
S10(15)	U 0.50	1.2	15.6	U 0.17	U 0.33	I 2.4	U 0.96	U 2.6	U 25.0	U 4.6	U 0.09	I 4.8	U 3.9	U 1.0	193	U 0.11	I 6.8	U 11.0
S10(30)	U 0.50	U 0.5	26.0	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	U 25.0	U 4.6	U 0.09	I 4.6	U 3.9	U 1.0	537	U 0.11	I 6.0	U 11.0
S10(60)	U 0.50	1.6	86.6	U 0.17	U 0.33	U 1.7	I 1.20	U 2.6	2640.0	I 9.2	U 0.09	7.8	I 4.9	U 1.0	9,050	U 0.11	I 1.4	U 11.0
S11(15)	U 0.50	2.7	26.2	U 0.17	U 0.33	I 3.5	U 0.96	U 2.6	4910.0	U 4.6	U 0.09	I 3.7	U 3.9	U 1.0	79	U 0.11	I 7.8	U 11.0
S11(30)	U 0.50	I 0.6	80.1	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	401.0	I 5.8	U 0.09	7.7	U 3.9	U 1.0	3,250	U 0.11	11.1	U 11.0
S11(60)	U 0.50	1.6	77.1	U 0.17	U 0.33	U 1.7	I 1.50	U 2.6	2250.0	11.7	U 0.09	8.9	I 9.2	U 1.0	493	U 0.11	I 1.4	U 11.0
S12(15)	NS																	
S12(30)	U 0.50	U 0.5	11.1	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	I 28.6	U 4.6	U 0.09	U 2.1	U 3.9	U 1.0	49.4	U 0.11	I 1.2	U 11.0
S12(60)	U 0.50	I 0.5	121.0	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	969.0	I 8.0	U 0.09	5.6	U 3.9	U 1.0	3,750	U 0.11	I 1.3	U 11.0
S13(15)	U 0.50	U 0.5	13.4	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	U 25.0	U 4.6	U 0.09	I 3.0	U 3.9	U 1.0	258	U 0.11	I 3.4	U 11.0
S13(30)	U 0.50	U 0.5	18.5	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	U 25.0	U 4.6	U 0.09	I 3.3	U 3.9	U 1.0	374	U 0.11	I 2.9	U 11.0
S13(60)	U 0.50	U 0.5	104.0	U 0.17	U 0.33	U 1.7	I 1.40	U 2.6	3170.0	I 9.9	U 0.09	6.9	I 10.5	U 1.0	8,810	U 0.11	U 5.0	U 11.0
S14(15)	U 0.50	U 0.5	12.4	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	U 25.0	U 4.6	U 0.09	I 2.8	U 3.9	U 1.0	181	U 0.11	I 6.6	U 11.0
S14(30)	U 0.50	U 0.5	58.9	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	U 25.0	I 6.2	U 0.09	5.6	U 3.9	U 1.0	2,050	U 0.11	11.1	U 11.0
S14(60)	U 0.50	1.7	75.7	U 0.17	U 1.60	U 1.7	U 4.80	U 2.6	3090.0	U 0.2	U 0.09	U 10.5	U 19.5	U 1.0	10,800	U 0.11	U 1.0	U 11.0
S15(15)	U 0.50	U 0.5	13.1	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	U 25.0	U 4.6	U 0.09	U 2.1	U 3.9	U 1.0	144	U 0.11	U 1.0	U 11.0
S15(30)	U 0.50	U 0.5	14.8	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	U 25.0	U 4.6	U 0.09	U 2.1	U 3.9	U 1.0	227	U 0.11	U 1.0	U 11.0
S15(60)	U 0.50	U 0.5	70.9	U 0.85	U 1.60	U 8.5	U 4.80	U 13.0	297.0	I 28.6*	U 0.09	31.5	U 19.5	U 5.0	9,840	U 0.11	I 6.4	U 55.0
S16(15)	U 0.50	U 0.5	U 0.84	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	U 25.0	U 4.6	U 0.09	U 2.1	U 3.9	U 1.0	2,370	U 0.11	U 1.0	U 11.0
S16(30)	U 0.50	U 0.5	38.1	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	78.5	U 4.6	U 0.09	U 2.1	U 3.9	U 1.0	1,820	U 0.11	I 3.8	U 11.0
S16(60)	U 0.50	1.6	73.9	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	2320.0	U 4.6	U 0.09	U 2.1	U 3.9	U 1.0	9,220	U 0.11	U 1.0	U 11.0
S17(15)	U 0.50	I 0.9	27.0	U 0.17	U 0.33	8.5	I 2.20	U 2.6	U 25.0	U 4.6	U 0.09	I 3.6	U 3.9	U 1.0	482	U 0.11	28.6	U 11.0
S17(30)	U 0.50	U 0.5	97.3	U 0.17	U 0.33	I 2.1	U 0.96	U 2.6	47.7	U 4.6	U 0.09	U 2.1	U 3.9	U 1.0	3,340	U 0.11	I 5.9	U 11.0
S17(60)	U 0.50	I 0.8	92.8	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	2980.0	U 4.6	U 0.09	U 2.1	U 3.9	U 1.0	9,980	U 0.11	U 1.0	U 11.0
S18R(15)	U 0.50	1.0	24.9	U 0.17	U 0.33	8.4	I 2.60	U 2.6	U 25.0	U 4.6	U 0.09	I 4.4	U 3.9	U 1.0	495	U 0.11	17.5	U 11.0
S18R(30)	U 0.50	U 0.5	64.6	U 0.17	U 0.33	5.3	U 0.96	U 2.6	I 31.9	U 4.6	U 0.09	I 2.3	U 3.9	U 1.0	1,590	U 0.11	10.4	U 11.0
S18R(60)	U 0.50	3.5	I 9.5	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	437.0	U 4.6	U 0.09	U 2.1	U 3.9	U 1.0	35	U 0.11	U 1.0	U 11.0
S19(15)	U 0.50	I 0.5	139.0	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	420.0	I 7.0	U 0.09	6.9	I 8.6	U 1.0	4,780	U 0.11	I 1.8	104.0
S19(30)	U 0.50	U 0.5	118.0	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	474.0	I 5.1	U 0.09	6.7	I 5.8	U 1.0	2,110	U 0.11	I 1.8	U 11.0
S19(60)	U 0.50	U 0.5	37.8	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	U 25.0	U 4.6	U 0.09	5.2	U 3.9	U 1.0	471	U 0.11	I 1.8	U 11.0
S20(15)	U 0.50	U 0.5	26.8	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	U 25.0	U 4.6	U 0.09	I 4.2	U 3.9	U 1.0	358.0	U 0.11	I 2.1	U 11.0
S20(30)	U 0.50	U 0.5	99.6	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	1010.0	I 5.5	U 0.09	6.2	U 3.9	U 1.0	1,840	U 0.11	I 1.6	U 11.0
S20(60)	U 0.50	I 0.5	135.0	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	1650.0	I 8.7	U 0.09	7.1	I 7.2	U 1.0	4,010	U 0.11	I 1.6	U 11.0
S21(15)	U 0.50	6.7	I 9.9	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	670.0	U 4.6	U 0.09	U 2.1	U 3.9	U 1.0	32.4	U 0.11	I 1.3	U 11.0
S21(30)	U 0.50	U 0.5	93.9	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	499.0	I 4.8	U 0.09	6.8	U 3.9	U 1.0	1,400	U 0.11	I 1.6	U 11.0
S21(60)	U 0.50	I 0.8	148.0	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	1500.0	I 8.8	U 0.09	6.3	I 6.0	U 1.0	2,970	U 0.11	I 1.3	U 11.0
MCLs	6.0 PDWS	10.0 PDWS	2,000 PDWS	4.0 PDWS	5.0 PDWS	100 PDWS	140 GCTL	1,000 SDWS	300 SDWS	15.0 PDWS	2.0 PDWS	100 PDWS	50 PDWS	100 SDWS	160 PDWS	2.0 PDWS	49 GCTL	5,000 SDWS

MIAMI-DADE SOLID WASTE MANAGEMENT DEPARTMENT
TECHNICAL SERVICES AND ENVIRONMENTAL AFFAIRS DIVISION

Table 3. Groundwater Monitoring - Volatile Organic Substances Detected

SITE: ***South Dade Landfill***
EVENT: ***2nd Semiannual Monitoring Event 2022***

Sampled by: *Pace Analytical Laboratory*

DETECTED PARAMETERS ONLY, *µg/L*								
Well	**EPA 8011 & 8260 Parameters**	**Chloroform**	**Acetone**	**Dibromochloro-methane**	**Chlorobenzene**	**1,4 - Dichlorobenzene**	**Toluene**	**Benzene**
S1(10)							0.99 I	
S1(15)							0.76 I	
S1(60)	BDL							
S2(15)	BDL							
S2(30)	BDL							
S2(60)		5.8						
S3(15)								0.33 I
S3(30)	BDL							
S3(60)	BDL							
S4(15)	BDL							
S4(30)					0.37 I			
S4(60)	BDL							
S5(15)	BDL							
S5(30)	BDL							
S5(60)	BDL							
S6(15)	BDL							
S6(30)	BDL							
S6(60)	BDL							
S7(15)	BDL							
S7(30)	BDL							
S7(60)	BDL							
S8(15)							16.4	0.34 I
S8(30)	BDL							
S8(60)	BDL							
S9(15)	BDL							
S9(30)	BDL							
S9(60)		2.9						
S10(15)					0.44 I			
S10(30)	BDL							
S10(60)	BDL							
S11(15)	BDL							
S11(30)	BDL							
S11(60)	BDL							
S12(15)								
S12(30)	BDL							
S12(60)	BDL							
S13(15)	BDL							
S13(30)	BDL							
S13(60)	BDL							
S14(15)	BDL							
S14(30)	BDL							
S14(60)	BDL							
S15(15)	BDL							
S15(30)	BDL							
S15(60)	BDL							
S16(15)			14.2 I					
S16(30)	BDL							
S16(60)	BDL							
S17(15)					1.6	0.52 I		
S17(30)	BDL							
S17(60)	BDL							
S18R(15)	BDL							
S18R(30)	BDL							
S18R(60)	BDL							
S19(15)	BDL							
S19(30)	BDL							
S19(60)	BDL							
S20(15)	BDL							
S20(30)	BDL							
S20(60)	BDL							
S21(15)	BDL							
S21(30)	BDL							
S21(60)	BDL							
MCLs *		70			100		1,000	10,000 (Total Xyl)

** FAC 62-550.310 Drinking Water Standards or 62-777 CTLs (µg/L). BDL = ALL VOC BELOW DETECTION LIMITS.*

MIAMI-DADE SOLID WASTE MANAGEMENT DEPARTMENT - TECHNICAL SERVICES AND ENVIRONMENTAL AFFAIRS DIVISION

Table 1. Groundwater Monitoring - General Parameters

SITE: *South Dade Landfill* **LABORATORY:** *Pace Analytical*

EVENT: *1st Semiannual Monitoring 2022* **SAMPLED BY:** *Pace Analytical*

Well	Sampling Date	Turbidity *NTU*	DO *mg/L*	S. Cond. *umhos/cm*	Temp. *Deg. C*	pH *pH units*	Color / Sheen	TDS *mg/L*	NO_3^-- N *mg/L*	Cl^- *mg/L*	$NH3^+$- N *mg/L*
S1(10)	01/25/22	1.08	0.13	1,192	23.0	7.5	Clear	668	U 0.025	212	4.80
S1(15)	01/25/22	1.10	0.40	1,190	23.0	7.5	Clear	662	U 0.025	224	3.10
S1(60)	01/25/22	0.95	0.21	10,232	22.9	7.4	Clear	6,280	U 0.025	3,040	0.70
S2(15)	01/21/22	0.46	0.50	696	22.1	7.1	Clear	387	U 0.025	50	2.10
S2(30)	01/21/22	0.43	0.67	1,960	22.0	7.6	Clear	1,050	U 0.025	488	0.25
S2(60)	01/21/22	6.35	0.66	14,975	22.3	7.2	Clear	8,800	I 0.034	4,410	0.42
S3(15)	02/09/22	2.74	0.25	3,908	29.0	7.0	Clear	2,110	U 0.025	1,020	23.30
S3(30)	02/09/22	2.86	0.40	20,804	30.1	6.9	Clear	12,800	U 0.025	7,200	3.90
S3(60)	02/09/22	6.07	0.27	40,164	28.8	7.0	Clear	27,800	U 0.025	14,900	0.89
S4(15)	01/28/22	0.95	0.30	1,867	21.7	7.3	Clear	962	U 0.025	364	7.10
S4(30)	01/28/22	2.96	0.25	2,757	22.3	7.5	Clear	1,460	0.057	654	5.20
S4(60)	01/28/22	0.56	0.14	40,650	22.2	7.2	Clear	26,800	I 0.030	15,000	1.20
S5(15)	02/09/22	12.30	0.47	3,105	23.0	7.1	Clear	1,690	U 0.025	818	0.44
S5(30)	02/09/22	2.05	0.26	4,240	24.6	7.3	Clear	2,290	U 0.025	1,160	0.56
S5(60)	02/09/22	1.91	0.36	46,938	24.7	6.9	Clear	33,800	U 0.025	19,800	0.45
S6(15)	01/26/22	0.94	0.61	934	22.2	7.4	Clear	536	U 0.025	108	3.60
S6(30)	01/26/22	0.88	0.66	1,159	22.7	7.7	Clear	634	0.099	148	1.60
S6(60)	01/26/22	0.87	0.29	11,215	22.4	7.4	Clear	6,600	0.051	3,530	0.65
S7(15)	01/21/22	0.95	0.60	979	20.0	7.2	Clear	504	U 0.025	77	12.10
S7(30)	01/21/22	6.45	0.61	1,100	20.5	7.1	Clear	594	U 0.025	209	0.70
S7(60)	01/21/22	0.29	0.65	9,918	21.1	7.4	Clear	5,940	U 0.025	3,030	0.57
S8(15)	01/26/22	0.57	0.50	671	21.5	7.5	Clear	377	U 0.025	58	2.00
S8(30)	01/26/22	0.70	0.41	2,067	22.1	7.6	Clear	1,090	U 0.025	496	0.53
S8(60)	01/26/22	0.65	0.30	35,277	22.3	7.1	Clear	23,900	U 0.025	13,000	0.77
S9(15)	01/26/22	0.41	0.26	1,129	21.9	7.4	Clear	620	U 0.025	175	3.00
S9(30)	01/26/22	0.61	0.40	1,566	22.2	7.6	Clear	890	0.056	384	0.79
S9(60)	01/26/22	0.64	0.23	38,156	22.3	7.0	Clear	25,600	U 0.025	14,400	0.64
S10(15)	01/26/22	0.96	0.23	2,631	22.2	7.4	Clear	1,430	I 0.035	613	15.90
S10(30)	01/26/22	0.78	0.31	3,560	23.0	7.4	Clear	1,970	U 0.025	863	16.40
S10(60)	01/26/22	0.50	0.13	46,276	22.7	7.2	Clear	32,100	I 0.025	17,500	0.91
S11(15)	01/28/22	0.43	0.17	1,360	22.8	7.2	Clear	740	U 0.025	218	4.50
S11(30)	01/28/22	0.34	0.15	24,848	23.9	7.0	Clear	15,900	I 0.028	8,670	8.20
S11(60)	01/28/22	0.30	0.30	49,262	23.6	7.2	Clear	34,300	I 0.031	18,300	0.69
S12(15)	01/21/22	2.97	0.63	1,242	20.7	7.0	Clear	750	U 0.025	111	1.90
S12(30)	01/21/22	0.57	0.67	533	21.2	7.4	Clear	309	U 0.025	44	U 0.04
S12(60)	01/21/22	0.28	0.74	23,736	21.3	7.2	Clear	15,700	I 0.026	8,690	0.51
S13(15)	01/26/22	0.94	0.22	1,685	21.4	7.4	Clear	906	U 0.025	344	1.40
S13(30)	01/26/22	0.77	0.39	2,728	21.7	7.5	Clear	1,520	U 0.025	768	1.40
S13(60)	01/26/22	0.93	0.16	42,309	21.8	7.1	Clear	28,000	I 0.028	16,900	0.99
S14(15)	01/26/22	1.54	0.25	1,615	20.8	7.2	Clear	952	U 0.025	304	1.10
S14(30)	01/26/22	0.47	0.23	16,628	22.0	7.1	Clear	10,300	I 0.031	4,990	10.60
S14(60)	01/26/22	0.73	0.22	49,565	22.6	7.2	Clear	34,600	I 0.032	19,000	0.76
S15(15)	01/28/22	3.69	0.17	1,569	25.8	7.3	Clear	834	U 0.025	307	0.66
S15(30)	01/28/22	3.66	0.11	2,439	25.6	7.5	Clear	1,280	U 0.025	578	0.18
S15(60)	01/28/22	3.45	0.48	49,924	25.3	7.0	Clear	35,000	U 0.025	19,600	0.48
S16(15)	01/28/22	8.53	0.36	2,091	25.0	7.0	Clear	1,160	U 0.025	347	U 0.04
S16(30)	01/28/22	4.78	0.13	17,755	25.4	7.1	Clear	10,400	U 0.025	5,400	4.90
S16(60)	01/28/22	3.92	0.12	48,005	25.3	7.0	Clear	32,000	U 0.025	18,600	0.61
S17(15)	01/25/22	0.55	0.37	3,059	25.1	7.1	Clear	1,810	I 0.026	543	59.30
S17(30)	01/25/22	0.68	0.37	22,781	25.2	7.0	Clear	14,600	U 0.025	7,550	6.60
S17(60)	01/25/22	3.56	0.25	47,190	23.7	7.1	Clear	35,800	U 0.025	18,000	0.79
S18R(15)	01/25/22	0.45	0.25	3,523	23.3	7.3	Clear	1,960	U 0.250	720	60.00
S18R(30)	01/25/22	0.54	0.29	14,677	24.8	7.2	Clear	10,300	U 0.025	4,450	21.70
S18R(60)	01/25/22	0.62	0.28	47,566	24.8	7.1	Clear	33,400	I 0.032	18,400	0.90
S19(15)	01/25/22	0.94	0.30	2,521	23.1	7.2	Clear	1,480	U 0.025	590	2.70
S19(30)	01/25/22	0.93	0.39	13,704	23.0	7.2	Clear	8,740	U 0.025	8,760	0.93
S19(60)	01/25/22	1.35	0.37	28,309	23.3	7.1	Clear	18,100	U 0.025	9,700	0.99
S20(15)	01/25/22	0.93	0.54	1,781	21.9	7.2	Clear	1,020	U 0.025	389	1.90
S20(30)	01/25/22	0.94	0.49	12,574	22.2	7.2	Clear	7,680	0.190	3,820	0.57
S20(60)	01/25/22	2.70	0.56	23,119	22.1	7.2	Clear	14,600	U 0.025	7,770	0.92
S21(15)	01/25/22	1.66	0.23	765	22.4	7.0	Clear	441	U 0.025	56.5	0.43
S21(30)	01/25/22	0.96	0.29	10,001	22.9	7.4	Clear	6,220	U 0.025	2,970	0.61
S21(60)	01/25/22	1.06	0.18	18,173	22.6	7.2	Clear	11,800	U 0.025	5,940	0.39
PDWS: *as per FAC 62-550.310(1)(a)*						6.5 - 8.5 SDWS		500 SDWS	10.0 PDWS	250 SDWS	
SDWS: *as per FAC 62-550.320(1)*											

MIAMI-DADE SOLID WASTE MANAGEMENT DEPARTMENT - TECHNICAL SERVICES AND ENVIRONMENTAL AFFAIRS DIVISION

Table 2. Groundwater Monitoring - Metals

SITE: SOUTH DADE LANDFILL
EVENT: 1st SEMIANNUAL MONITORING EVENT OF 2022

LABORATORY: *Pace Analytical Laboratory*
SAMPLED BY: *Pace Analytical Laboratory*

Well	Sb µg/L	As µg/L	Ba µg/L	Be µg/L	Cd µg/L	Cr µg/L	Co µg/L	Cu µg/L	Fe µg/L	Pb µg/L	Hg µg/L	Ni µg/L	Se µg/L	Ag µg/L	Na mg/L	Tl µg/L	Va µg/L	Zn µg/L
S1(10)	U 0.50	I 0.8	17.9	U 0.17	U 0.33	I 2.9	U 0.96	U 2.6	67.6	U 4.6	U 0.09	I 2.8	U 3.9	U 1.0	123.0	U 0.11	I 2.5	U 11.0
S1(15)	U 0.50	I 0.6	16.0	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	57.3	U 4.6	U 0.09	I 2.7	U 3.9	U 1.0	125.0	U 0.11	I 2.0	U 11.0
S1(60)	U 0.50	I 0.7	108.0	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	567.0	U 4.6	U 0.09	I 4.0	U 3.9	U 1.0	1,720	U 0.11	U 1.0	U 11.0
S2(15)	U 0.50	U 0.5	10.2	U 0.17	I 0.46	U 1.7	U 0.96	U 2.6	258.0	U 4.6	0.69	U 2.1	U 3.9	U 1.0	30.2	U 0.11	I 1.1	U 11.0
S2(30)	U 0.50	1.4	17.6	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	217.0	U 4.6	U 0.09	I 3.4	U 3.9	U 1.0	261	U 0.11	I 1.1	U 11.0
S2(60)	I 0.63	1.1	104.0	U 0.17	U 0.33	U 1.7	I 1.20	I 3.1	177.0	I 4.7	U 0.09	10.3	I 12.2	U 1.0	2,500	U 0.11	I 4.0	U 11.0
S3(15)	U 0.50	4.1	32.1	U 0.17	U 0.33	6.2	U 0.96	U 2.6	I 36.6	U 4.6	U 0.09	I 2.4	U 3.9	U 1.0	604	U 0.11	I 8.4	U 11.0
S3(30)	U 0.50	I 0.9	155.0	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	1040.0	U 4.6	U 0.09	U 2.1	U 3.9	U 1.0	3,750	U 0.11	I 7.6	U 11.0
S3(60)	U 0.50	I 0.7	131.0	U 0.17	U 0.33	U 1.7	I 7.6	U 2.6	1140.0	U 4.6	U 0.09	U 2.1	U 3.9	U 1.0	7,620	U 0.11	U 1.0	U 55.0
S4(15)	U 0.50	I 0.7	20.7	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	270.0	U 4.6	U 0.09	I 3.0	U 3.9	U 1.0	214	U 0.11	I 5.8	U 11.0
S4(30)	U 0.50	U 0.5	21.0	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	I 36.0	U 4.6	U 0.09	I 3.0	U 3.9	U 1.0	365	U 0.11	I 3.4	I 13.2
S4(60)	U 0.50	1.2	113.0	U 0.17	U 0.33	U 8.5	U 4.80	U 2.6	2560.0	U 4.6	U 0.09	I 21.6	U 19.5	U 5.0	7,350	U 0.11	U 1.0	U 11.0
S5(15)	U 0.50	U 0.5	20.8	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	120.0	U 4.6	U 0.09	U 2.1	U 3.9	U 1.0	450	U 0.11	U 1.0	U 11.0
S5(30)	U 0.50	U 0.5	28.5	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	U 25.0	U 4.6	U 0.09	U 2.1	U 3.9	U 1.0	643	U 0.11	I 1.5	U 11.0
S5(60)	U 0.50	I 0.7	72.2	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	859.0	U 4.6	U 0.09	U 2.1	U 3.9	U 1.0	9,400	U 0.11	I 8.8	U 11.0
S6(15)	U 0.50	I 0.6	27.5	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	U 25.0	U 4.6	U 0.09	I 2.1	U 3.9	U 1.0	77.2	U 0.11	I 1.7	U 11.0
S6(30)	U 0.50	U 0.5	21.1	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	U 25.0	U 4.6	U 0.09	U 2.1	U 3.9	U 1.0	131	U 0.11	U 1.0	U 11.0
S6(60)	U 0.50	I 0.6	107.0	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	727.0	U 4.6	U 0.09	I 3.7	U 3.9	U 1.0	1,920	U 0.11	U 1.0	U 11.0
S7(15)	U 0.50	U 0.5	19.2	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	143.0	U 4.6	U 0.09	U 2.1	U 3.9	U 1.0	51.2	U 0.11	I 1.4	U 11.0
S7(30)	U 0.50	2.2	11.7	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	121.0	U 4.6	U 0.09	U 2.1	U 3.9	U 1.0	120	U 0.11	I 1.2	U 11.0
S7(60)	U 0.50	4.5	82.0	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	625.0	U 4.6	U 0.09	I 4.1	I 8.6	U 1.0	1,600	U 0.11	I 1.2	U 11.0
S8(15)	U 0.50	I 0.5	9.9	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	I 32.0	U 4.6	U 0.09	U 2.1	U 3.9	U 1.0	41.6	U 0.11	I 1.9	U 11.0
S8(30)	U 0.50	U 0.5	16.7	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	U 25.0	U 4.6	U 0.09	U 2.1	U 3.9	U 1.0	345	U 0.11	I 1.1	U 11.0
S8(60)	U 0.50	1.2	115.0	U 0.17	U 0.33	U 1.7	U 9.60	U 2.6	2910.0	U 4.6	U 0.09	U 21.0	U 39.0	U 1.0	6,830	U 0.11	U 1.0	U 110.0
S9(15)	U 0.50	U 0.5	11.0	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	U 25.0	U 4.6	U 0.09	U 2.1	U 3.9	U 1.0	115.0	U 0.11	I 1.7	U 11.0
S9(30)	U 0.50	U 0.5	14.6	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	U 25.0	U 4.6	U 0.09	U 2.1	U 3.9	U 1.0	187	U 0.11	I 1.3	U 11.0
S9(60)	I 0.56	I 1.0	121.0	U 0.17	U 0.33	U 1.7	U 9.60	U 26.0	604.0	U 4.6	U 0.09	U 21.0	U 39.0	U 1.0	7,540	U 0.11	I 15.3	U 110.0
S10(15)	U 0.50	I 0.7	20.8	U 0.17	U 0.33	I 2.4	U 0.96	U 2.6	U 25.0	U 4.6	U 0.09	I 3.6	U 3.9	U 1.0	377	U 0.11	I 6.6	U 11.0
S10(30)	U 0.50	I 0.5	29.4	U 0.17	U 0.33	I 2.6	U 0.96	U 2.6	U 25.0	U 4.6	U 0.09	I 3.8	U 3.9	U 1.0	547	U 0.11	I 8.0	U 11.0
S10(60)	U 0.50	1.3	100.0	U 0.17	U 0.33	U 1.7	U 9.60	I 27.7	3330.0	U 4.6	U 0.09	I 30.1	U 39.0	U 1.0	9,760	U 0.11	U 1.0	U 11.0
S11(15)	U 0.50	I 0.6	15.6	U 0.17	U 0.33	I 2.1	U 0.96	U 2.6	82.1	U 4.6	U 0.09	U 2.1	U 3.9	U 1.0	134	U 0.11	I 4.7	U 11.0
S11(30)	U 0.50	U 0.5	114.0	U 0.17	U 1.60	U 1.7	U 4.80	U 2.6	595.0	I 5.3	U 0.09	I 3.8	U 3.9	U 1.0	4,350	U 0.11	I 6.3	U 11.0
S11(60)	U 0.50	1.4	78.2	U 0.85	U 0.33	U 8.5	U 4.80	U 2.6	2750.0	U 4.6	U 0.09	I 18.9	U 19.5	U 5.0	9,860	U 0.11	U 1.0	U 11.0
S12(15)	U 0.50	I 0.6	14.3	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	96.9	U 4.6	U 0.09	U 2.1	U 3.9	U 1.0	89	U 0.11	I 2.6	U 11.0
S12(30)	U 0.50	U 0.5	9.4	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	44.6	U 4.6	U 0.09	U 2.1	I 5.3	U 1.0	27.4	U 0.11	U 1.0	U 11.0
S12(60)	U 0.50	I 0.6	161.0	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	1090.0	U 4.6	U 0.09	U 2.1	U 3.9	U 1.0	4,420	U 0.11	U 1.0	U 11.0
S13(15)	U 0.50	U 0.5	13.7	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	U 25.0	U 4.6	U 0.09	U 2.1	U 3.9	U 1.0	200	U 0.11	I 2.6	U 11.0
S13(30)	U 0.50	U 0.5	22.3	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	U 25.0	U 4.6	U 0.09	I 2.3	U 3.9	U 1.0	429	U 0.11	I 2.1	U 11.0
S13(60)	U 0.50	I 0.6	110.0	U 0.17	U 0.33	U 1.7	I 9.60	U 2.6	3460.0	U 4.6	U 0.09	U 21.0	U 39.0	U 1.0	9,190	U 0.11	U 1.0	U 110.0
S14(15)	U 0.50	U 0.5	12.7	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	U 25.0	U 4.6	U 0.09	U 2.1	U 3.9	U 1.0	179	U 0.11	I 4.8	U 11.0
S14(30)	U 0.50	U 0.5	84.7	U 0.17	U 0.33	I 2.4	I 0.97	U 2.6	U 25.0	I 5.4	U 0.09	I 3.7	U 3.9	U 1.0	3,050	U 0.11	11.1	U 11.0
S14(60)	U 0.50	1.6	84.3	U 0.17	U 0.33	U 1.7	U 9.60	U 2.6	3660.0	U 4.6	U 0.09	U 21.0	U 39.0	U 1.0	10,300	U 0.11	U 1.0	U 11.0
S15(15)	U 0.50	U 0.5	13.5	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	U 25.0	U 4.6	U 0.09	U 2.1	U 3.9	U 1.0	164	U 0.11	U 1.0	U 110.0
S15(30)	U 0.50	U 0.5	19.0	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	I 25.5	U 4.6	U 0.09	I 3.1	U 3.9	U 1.0	392	U 0.11	U 1.0	U 11.0
S15(60)	U 0.50	U 0.5	85.8	U 0.17	U 0.82	U 1.7	U 4.80	U 2.6	1910.0	U 11.5	U 0.09	U 10.5	U 3.9	U 1.0	10,700	U 0.11	U 1.0	U 11.0
S16(15)	U 0.50	I 0.9	15.5	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	42.4	U 4.6	U 0.09	I 3.2	U 3.9	U 1.0	198	U 0.11	U 1.0	U 11.0
S16(30)	U 0.50	U 0.5	59.9	U 0.17	U 0.33	U 1.7	I 1.00	U 2.6	87.1	I 5.5	U 0.09	I 4.6	U 3.9	U 1.0	3,390	U 0.11	I 5.2	U 11.0
S16(60)	U 0.50	1.2	82.6	U 0.17	U 0.33	U 1.7	U 4.80	U 2.6	2580.0	U 4.6	U 0.09	U 10.5	U 3.9	U 1.0	10,300	U 0.11	U 1.0	U 11.0
S17(15)	U 0.50	I 0.8	23.8	U 0.17	U 0.33	6.6	I 2.20	U 2.6	U 25.0	U 4.6	U 0.09	I 4.6	I 7.2	U 1.0	381	U 0.11	24.7	U 11.0
S17(30)	U 0.50	I 0.6	117.0	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	74.2	I 7.4	U 0.09	I 4.8	I 9.7	U 1.0	4,080	U 0.11	I 5.5	U 11.0
S17(60)	U 0.50	1.3	87.0	U 0.17	U 0.33	U 1.7	U 9.60	U 2.6	3020.0	U 4.6	U 0.09	I 29.4	U 39.0	U 1.0	9,470	U 0.11	U 1.0	U 11.0
S18R(15)	U 0.50	1.1	21.6	U 0.17	U 0.33	8.7	I 2.60	U 2.6	I 31.0	U 4.6	U 0.09	6.7	U 3.9	U 1.0	539	U 0.11	20.1	U 11.0
S18R(30)	U 0.50	I 0.7	94.2	U 0.17	U 0.33	I 2.5	U 0.96	U 2.6	I 29.5	U 4.6	U 0.09	5.1	I 6.0	U 1.0	2,510	U 0.11	I 9.1	U 11.0
S18R(60)	U 0.50	1.9	120.0	U 0.17	U 0.33	U 1.7	U 9.60	U 2.6	4440.0	U 4.6	U 0.09	I 30.4	U 39.0	U 1.0	9,440	U 0.11	U 1.0	U 11.0
S19(15)	U 0.50	U 0.5	34.7	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	U 25.0	U 4.6	U 0.09	I 2.5	U 3.9	U 1.0	271	U 0.11	I 1.2	U 11.0
S19(30)	U 0.50	U 0.5	132.0	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	355.0	I 5.9	U 0.09	I 3.7	I 12.3	U 1.0	2,190	U 0.11	U 1.0	U 11.0
S19(60)	U 0.50	I 0.7	135.0	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	981.0	U 4.6	U 0.09	I 28.4	U 39.0	U 1.0	5,170	U 0.11	U 1.0	457.0
S20(15)	U 0.50	U 0.5	23.4	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	U 25.0	U 4.6	U 0.09	U 2.1	I 8.3	U 1.0	230.0	U 0.11	I 1.5	U 11.0
S20(30)	U 0.50	1.2	109.0	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	1240.0	I 6.8	U 0.09	I 4.6	I 8.2	U 1.0	2,090	U 0.11	U 1.0	I 12.6
S20(60)	U 0.50	I 0.9	143.0	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	2180.0	I 6.6	U 0.09	5.1	I 14.0	U 1.0	3,980	U 0.11	U 1.0	U 11.0
S21(15)	U 0.50	10.3	10.9	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	709.0	U 4.6	U 0.09	U 2.1	I 4.8	U 1.0	35.8	U 0.11	U 1.0	U 11.0
S21(30)	U 0.50	I 0.6	111.0	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	428.0	U 4.6	U 0.09	I 3.6	U 3.9	U 1.0	1,690	U 0.11	U 1.0	U 11.0
S21(60)	U 0.50	1.1	151.0	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	1540.0	U 4.6	U 0.09	I 4.4	U 3.9	U 1.0	3,030	U 0.11	U 1.0	U 11.0
MCLs	6.0 PDWS	10.0 PDWS	2,000 PDWS	4.0 PDWS	5.0 PDWS	100 PDWS	140 GCTL	1,000 SDWS	300 SDWS	15.0 PDWS	2.0 PDWS	100 PDWS	50 PDWS	100 SDWS	160 PDWS	2.0 PDWS	49 GCTL	5,000 SDWS

MIAMI-DADE SOLID WASTE MANAGEMENT DEPARTMENT

TECHNICAL SERVICES AND ENVIRONMENTAL AFFAIRS DIVISION

Table 3. Groundwater Monitoring - Volatile Organic Substances Detected

SITE: ***South Dade Landfill***

EVENT: ***1st Semiannual Monitoring Event 2022***

Sampled by: *Pace Analytical Laboratory*

	DETECTED PARAMETERS ONLY, *µg/L*							
Well	**EPA 8011 & 8260 Parameters**	**Chloroform**	**Bromodichloro-methane**	**Dibromochloro-methane**	**Chlorobenzene**	**1,4 - Dichlorobenzene**	**Toluene**	**o-Xylene**
S1(10)	BDL							
S1(15)	BDL							
S1(60)	BDL							
S2(15)	BDL							
S2(30)	BDL							
S2(60)		56.5	3.3					
S3(15)	BDL							
S3(30)	BDL							
S3(60)	BDL							
S4(15)	BDL							
S4(30)	BDL							
S4(60)	BDL							
S5(15)	BDL							
S5(30)	BDL							
S5(60)	BDL							
S6(15)	BDL							
S6(30)	BDL							
S6(60)	BDL							
S7(15)	BDL							
S7(30)	BDL							
S7(60)	BDL							
S8(15)	BDL							
S8(30)	BDL							
S8(60)	BDL							
S9(15)	BDL							
S9(30)	BDL							
S9(60)	BDL							
S10(15)					0.46 I			
S10(30)					0.41 I			
S10(60)	BDL							
S11(15)	BDL							
S11(30)	BDL							
S11(60)	BDL							
S12(15)	BDL							
S12(30)	BDL							
S12(60)	BDL							
S13(15)	BDL							
S13(30)	BDL							
S13(60)	BDL							
S14(15)	BDL							
S14(30)	BDL							
S14(60)	BDL							
S15(15)	BDL							
S15(30)	BDL							
S15(60)	BDL							
S16(15)	BDL							
S16(30)	BDL							
S16(60)	BDL							
S17(15)					2.3	0.60 I		
S17(30)	BDL							
S17(60)	BDL							
S18R(15)						0.30 I		
S18R(30)	BDL							
S18R(60)	BDL							
S19(15)	BDL							
S19(30)	BDL							
S19(60)	BDL							
S20(15)	BDL							
S20(30)	BDL							
S20(60)	BDL							
S21(15)	BDL							
S21(30)	BDL							
S21(60)	BDL							
MCLs *		70			100		1,000	10,000 (Total Xyl)

** FAC 62-550.310 Drinking Water Standards or 62-777 CTLs (µg/L). BDL = ALL VOC BELOW DETECTION LIMITS.*

MIAMI-DADE SOLID WASTE MANAGEMENT DEPARTMENT - TECHNICAL SERVICES AND ENVIRONMENTAL AFFAIRS DIVISION

Table 1. Groundwater Monitoring - General Parameters

SITE: *South Dade Landfill* **LABORATORY:** *Pace Analytical*

EVENT: *2nd Semiannual Monitoring 2021* **SAMPLED BY:** *Pace Analytical*

Well	Sampling Date	Turbidity *NTU*	DO *mg/L*	S. Cond. *umhos/cm*	Temp. *Deg. C*	pH *pH units*	Color / Sheen	TDS *mg/L*	NO_3^-- N *mg/L*	NO_3^-- N *Resampling*	Cl^- *mg/L*	$NH3^+$- N *mg/L*
S1(10)	07/29/21	1.18	0.08	749	27.5	7.1	Clear	413	U 0.025	N/A	106	0.39
S1(15)	07/29/21	0.79	0.13	787	27.4	7.1	Clear	108	U 0.025	N/A	110	0.36
S1(60)	07/29/21	0.64	0.05	10,615	26.5	7.0	Clear	6,440	U 0.025	N/A	3,160	0.66
S2(15)	07/26/21	0.94	0.27	613	27.7	7.2	Clear	349	U 0.025	N/A	55	0.9
S2(30)	07/26/21	1.52	0.07	2,418	27.1	7.4	Clear	1,320	U 0.025	N/A	630	0.35
S2(60)	07/26/21	0.13	0.23	13,303	26.2	7.1	Clear	7,860	I 0.027	N/A	3,940	0.44
S3(15)	08/15/21	3.25	0.06	2,760	30.2	6.8	Clear	7,560	U 0.025	N/A	615	10.6
S3(30)	08/15/21	4.08	0.04	13,504	30.5	6.8	Clear	1,560	U 0.025	N/A	3,920	4.2
S3(60)	08/15/21	3.95	0.03	38,368	29.6	6.8	Clear	25,400	U 0.025	N/A	13,600	1.2
S4(15)	07/22/21	2.27	0.11	1,787	26.6	7.2	Clear	958	U 0.025	N/A	356	7.5
S4(30)	07/22/21	9.32	0.05	1,550	26.4	7.2	Clear	1,790	U 0.025	N/A	337	11.5
S4(60)	08/13/21	0.57	0.04	39,576	26.2	7.0	Clear	23,800	U 0.025	N/A	15,200	1.3
S5(15)	07/21/21	12.60	1.40	3,250	26.7	7.1	Clear	1,660	0.240	N/A	674	0.29
S5(30)	07/21/21	1.19	0.07	3,968	25.3	7.3	Clear	1,730	U 0.025	N/A	803	0.53
S5(60)	07/21/21	1.16	0.10	50,750	25.4	6.8	Clear	8,350	0.110	N/A	18,100	0.55
S6(15)	07/26/21	1.01	0.19	839	28.1	7.1	Clear	449	U 0.025	N/A	82	2.1
S6(30)	07/27/21	0.56	0.17	1,363	27.4	7.5	Clear	718	U 0.025	N/A	277	1.0
S6(60)	07/27/21	0.36	0.17	11,189	26.9	7.2	Clear	6,500	U 0.025	N/A	3,430	0.62
S7(15)	08/13/21	0.60	0.12	1,101	27.8	6.6	Clear	465	U 0.025	N/A	69	16.6
S7(30)	07/20/21	0.32	0.10	430	26.3	7.2	Clear	373	U 0.025	N/A	85	0.63
S7(60)	07/20/21	0.30	0.05	9,700	26.2	7.2	Clear	6,220	U 0.025	N/A	3,240	0.66
S8(15)	07/20/21	3.90	0.06	552	25.7	7.1	Clear	373	U 0.025	N/A	77	1.90
S8(30)	07/20/21	1.17	0.05	2,049	25.7	7.2	Clear	1,580	U 0.025	N/A	717	0.8
S8(60)	08/12/21	0.49	0.04	33,528	25.6	6.9	Clear	22,500	U 0.025	N/A	11,400	0.78
S9(15)	07/23/21	0.73	0.10	1,172	26.5	7.2	Clear	624	U 0.025	N/A	194	2.8
S9(30)	07/23/21	1.30	0.20	1,183	25.6	7.5	Clear	614	U 0.025	N/A	222	0.60
S9(60)	07/23/21	0.69	0.29	25,374	25.5	7.6	Clear	14,800	0.330	N/A	8,570	0.19
S10(15)	07/22/21	0.91	0.19	1,802	26.4	7.2	Clear	1,260	U 0.025	N/A	501	18.9
S10(30)	07/22/21	0.34	0.06	3,333	26.4	7.2	Clear	2,420	U 0.025	N/A	1,070	15.6
S10(60)	07/22/21	0.51	0.05	48,207	26.3	7.1	Clear	30,800	U 0.025	N/A	17,600	0.96
S11(15)	07/23/21	0.89	0.08	2,013	28.2	7.5	Clear	1,040	U 0.025	N/A	404	11.0
S11(30)	07/23/21	1.33	0.34	9,456	29.2	7.4	Clear	5,260	0.300	N/A	2,660	41.7
S11(60)	07/23/21	3.81	0.40	50,086	28.1	7.4	Clear	30,000	U 0.025	N/A	19,800	0.55
S12(15)	10/11/21	12.50	1.22	1,251	27.1	6.8	Clear	728	U 0.025	N/A	128	2.0
S12(30)	08/12/21	0.25	0.12	595	27.6	6.9	Clear	318	U 0.025	N/A	57	0.07
S12(60)	08/12/21	0.21	0.09	23,363	26.3	7.0	Clear	13,900	U 0.025	N/A	7,620	0.53
S13(15)	07/21/21	0.63	0.11	1,598	25.4	7.0	Clear	950	U 0.025	N/A	391	0.9
S13(30)	07/21/21	0.26	0.06	2,414	25.3	7.2	Clear	1,480	U 0.025	N/A	671	1.5
S13(60)	07/21/21	1.14	0.05	46,748	25.4	7.0	Clear	23,000	I 0.026	N/A	15,600	1.0
S14(15)	07/21/21	1.63	0.09	3,194	26.4	7.2	Clear	1,070	U 0.025	N/A	493	3.9
S14(30)	07/21/21	0.52	0.08	21,092	26.1	7.0	Clear	12,100	U 0.025	N/A	6,910	9.7
S14(60)	08/12/21	0.84	0.05	49,532	26.2	7.0	Clear	34,200	I 0.034	N/A	19,100	0.78
S15(15)	07/21/21	1.96	0.17	1,160	26.3	7.2	Clear	538	U 0.025	N/A	171	0.73
S15(30)	07/21/21	1.25	0.09	1,388	25.7	7.5	Clear	688	U 0.025	N/A	267	0.12
S15(60)	07/21/21	1.09	0.08	53,812	25.6	6.9	Clear	31,400	U 0.025	N/A	19,100	0.51
S16(15)	07/29/21	0.73	0.05	12,983	25.7	6.8	Clear	8,160	U 0.025	N/A	2,170	5.40
S16(30)	07/29/21	28.90	0.11	1,908	26.8	6.9	Clear	1,110	U 0.025	N/A	180	0.14
S16(60)	07/29/21	0.79	0.04	47,229	25.8	6.7	Clear	33,000	U 0.025	N/A	18,500	0.70
S17(15)	07/27/21	7.82	1.19	3,777	29.8	7.0	Clear	1,780	U 0.025	N/A	13	90.0
S17(30)	07/27/21	0.38	0.14	12,693	30.7	7.1	Clear	7,320	U 0.025	N/A	3,730	23.0
S17(60)	07/27/21	3.75	0.13	47,500	29.6	7.0	Clear	30,100	I 0.028	N/A	1,840	0.82
S18R(15)	07/28/21	0.63	1.08	3,808	28.9	7.1	Clear	1,740	U 0.250	N/A	784	61.8
S18R(30)	07/28/21	0.33	1.63	7,484	29.6	7.0	Clear	4,180	U 0.025	N/A	2,050	18.2
S18R(60)	07/28/21	0.37	0.82	46,663	29.0	6.8	Clear	29,600	U 0.025	N/A	18,300	0.81
S19(15)	08/15/21	3.73	0.19	306	26.5	7.0	Clear	193	U 0.025	N/A	13	1.3
S19(30)	08/15/21	1.20	0.06	12,716	26.5	6.9	Clear	7,200	U 0.025	N/A	3,730	1.1
S19(60)	08/15/21	2.03	0.16	2,875	26.7	6.8	Clear	1,460	U 0.025	N/A	668	3.0
S20(15)	08/22/21	0.29	0.19	1,281	26.0	6.8	Clear	672	U 0.025	N/A	226	1.7
S20(30)	08/22/21	0.60	0.09	10,552	25.6	7.0	Clear	5,840	U 0.025	N/A	3,290	0.81
S20(60)	08/22/21	2.91	0.05	18,551	25.7	7.0	Clear	10,900	U 0.025	N/A	3,980	0.69
S21(15)	08/15/21	1.56	0.09	760	28.4	7.1	Clear	427	U 0.025	N/A	70.5	0.55
S21(30)	08/15/21	0.70	0.09	8,722	27.2	7.4	Clear	4,700	I 0.026	N/A	2,660	0.27
S21(60)	08/15/21	0.48	0.45	14,846	26.5	7.4	Clear	7,240	U 0.025	N/A	5,170	0.39
PDWS: *as per FAC 62-550.310(1)(a)*						6.5 - 8.5 SDWS		500 SDWS	10.0 PDWS		250 SDWS	
SDWS: *as per FAC 62-550.320(1)*												

MIAMI-DADE SOLID WASTE MANAGEMENT DEPARTMENT - TECHNICAL SERVICES AND ENVIRONMENTAL AFFAIRS DIVISION

Table 2. Groundwater Monitoring - Metals

SITE: SOUTH DADE LANDFILL

EVENT: 2nd SEMIANNUAL MONITORING EVENT OF 2021

LABORA *Pace Analytical Laboratory*

SAMPLE *Pace Analytical Laboratory*

Well	Sb µg/L	As µg/L	Ba µg/L	Be µg/L	Cd µg/L	Cr µg/L	Co µg/L	Cu µg/L	Fe µg/L	Pb µg/L	Hg µg/L	Ni µg/L	Se µg/L	Ag µg/L	Na mg/L	Tl µg/L	Va µg/L	Zn µg/L
S1(10)	U 0.50	2.8	12.1	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	142.0	U 4.6	U 0.09	2.2	U 8.5	U 1.0	53.2	U 0.11	1.2	U 11.0
S1(15)	U 0.50	1.5	12.4	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	98.0	U 4.6	U 0.09	U 2.1	U 8.5	U 1.0	54.7	U 0.11	I 1.4	U 11.0
S1(60)	U 0.50	0.55	98.8	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	531	U 4.6	U 0.09	4.6	U 8.5	U 1.0	1,460	U 0.11	U 1.0	U 11.0
S2(15)	U 0.50	U 0.5	I 8.6	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	I 25.3	U 4.6	U 0.09	U 2.1	U 8.5	U 1.0	30.9	U 0.11	U 1.0	U 11.0
S2(30)	U 0.50	2.0	22.4	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	448	U 4.6	U 0.09	I 3.4	U 8.5	U 1.0	292	U 0.11	U 10.0	U 11.0
S2(60)	I 0.71	I 0.98	89.8	U 0.17	U 0.33	U 1.7	U 0.96	I 3.1	109	U 4.6	U 0.09	9.7	U 8.5	U 1.0	1,980	U 0.11	U 100.0	U 11.0
S3(15)	U 0.50	2.6	26.7	U 0.17	U 0.33	I 4.2	U 0.96	U 2.6	I 37.3	U 4.6	U 0.09	7.1	U 3.9	U 1.0	304	U 0.11	I 5.5	U 11.0
S3(30)	U 0.50	I 0.6	94.7	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	389	U 4.6	U 0.09	U 2.1	U 3.9	U 1.0	2,190	U 0.11	I 1.5	U 11.0
S3(60)	U 0.50	I 0.6	120.0	U 0.17	U 0.33	U 1.7	I 12.9	U 2.6	773	U 4.6	U 0.09	U 2.1	U 3.9	U 1.0	6,790	U 0.11	U 1.0	U 11.0
S4(15)	U 0.50	I 0.8	20.8	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	513	U 4.6	I 0.10	I 3.6	U 8.5	U 1.0	190	U 0.11	I 5.5	I 18.2
S4(30)	U 0.50	I 0.7	16.4	U 0.17	U 0.33	I 1.8	U 0.96	U 2.6	I 25.3	U 4.6	I 0.10	I 3.5	U 8.5	U 1.0	176	U 0.11	I 5.4	U 11.0
S4(60)	U 0.50	1.6	105.0	U 0.17	U 0.33	U 1.7	I 1.60	U 2.6	2,310	U 4.6	U 0.09	7.0	U 3.9	U 1.0	6,440	U 0.11	I 1.2	U 11.0
S5(15)	U 0.50	U 0.5	19.2	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	169.0	U 4.6	U 0.09	I 3.6	U 8.5	U 1.0	375	U 0.11	I 1.8	U 11.0
S5(30)	U 0.50	U 0.5	21.7	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	U 25.0	U 4.6	U 0.09	I 3.6	U 8.5	U 1.0	461	U 0.11	I 1.7	U 11.0
S5(60)	U 0.50	I 0.5	76.2	U 0.17	U 0.66	U 3.4	U 0.96	U 5.2	1,240	U 4.6	U 0.09	U 2.1	U 8.5	U 2.0	8,220	U 0.11	I 2.3	U 11.0
S6(15)	U 0.50	U 0.5	29.3	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	U 25.0	U 4.6	U 0.09	I 2.5	U 8.5	U 1.0	52.5	U 0.11	I 2.8	U 11.0
S6(30)	U 0.50	U 0.5	20.7	U 0.17	1.10	U 1.7	U 0.96	U 2.6	U 25.0	U 4.6	U 0.09	U 2.1	U 8.5	U 1.0	152	U 0.11	I 1.2	U 11.0
S6(60)	U 0.50	U 0.5	102.0	U 0.17	2.00	U 1.7	U 0.96	U 2.6	725	U 4.6	U 0.09	U 2.1	U 8.5	U 1.0	1,710	U 0.11	I 1.4	U 11.0
S7(15)	U 0.50	U 0.5	24.0	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	127	U 4.6	U 0.09	U 2.1	U 3.9	U 1.0	47.7	U 0.11	I 1.2	U 11.0
S7(30)	U 0.50	1.0	I 9.4	U 0.17	I 0.75	U 1.7	U 0.96	U 2.6	112.0	U 4.6	U 0.09	U 2.1	U 8.5	U 1.0	54	U 0.11	I 1.0	U 11.0
S7(60)	U 0.50	4.9	81.8	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	721	U 4.6	U 0.09	5.0	U 8.5	U 1.0	1,690	U 0.11	I 1.1	U 11.0
S8(15)	U 0.50	I 0.7	10.0	U 0.17	I 0.42	U 1.7	U 0.96	U 2.6	68	U 4.6	U 0.09	U 2.1	U 8.5	U 1.0	47.7	U 0.11	I 1.8	U 11.0
S8(30)	U 0.50	U 0.5	23.1	U 0.17	1.30	U 1.7	U 0.96	U 2.6	U 25.0	U 4.6	U 0.09	U 2.1	U 8.5	U 1.0	383	U 0.11	I 1.5	U 11.0
S8(60)	U 0.50	1.9	128.0	U 0.17	2.80	U 1.7	U 0.96	U 2.6	2,500	U 4.6	U 0.09	U 2.1	U 3.9	U 1.0	6,490	U 0.11	U 1.0	U 11.0
S9(15)	U 0.50	U 0.5	10.6	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	U 25.0	U 4.6	U 0.09	U 2.1	U 8.5	U 1.0	114.0	U 0.11	I 1.7	U 11.0
S9(30)	U 1.00	U 1.0	10.4	U 0.17	I 0.63	U 1.7	U 0.96	U 2.6	U 25.0	U 4.6	U 0.09	U 2.1	U 8.5	U 1.0	122	U 0.11	I 1.2	U 11.0
S9(60)	U 2.50	U 2.5	115.0	U 0.17	U 0.33	U 1.7	U 1.90	U 2.6	167	U 4.6	U 0.09	U 4.2	U 3.9	U 1.0	7,790	U 0.53	I 3.0	U 11.0
S10(15)	U 0.50	1.0	18.0	U 0.17	U 0.33	I 2.9	U 0.96	U 2.6	U 25.0	U 4.6	I 0.10	I 4.1	U 8.5	U 1.0	276	U 0.11	I 8.0	U 11.0
S10(30)	U 0.50	I 0.5	31.5	U 0.17	U 0.33	I 2.0	U 0.96	U 2.6	U 25.0	U 4.6	I 0.11	I 4.5	U 8.5	U 1.0	783	U 0.11	I 9.4	U 11.0
S10(60)	U 0.50	1.2	90.9	U 0.34	U 0.66	U 3.4	I 3.10	U 5.2	2,460	U 4.6	I 0.09	U 2.1	U 17.0	U 1.0	8,170	U 0.11	U 2.0	U 11.0
S11(15)	U 1.00	U 1.0	17.1	U 0.17	U 1.60	I 2.7	U 0.96	U 2.6	359	U 4.6	U 0.09	U 2.1	U 8.5	U 1.0	241	U 0.11	I 6.5	U 11.0
S11(30)	U 1.00	U 1.0	71.3	U 0.17	U 0.33	I 2.8	U 0.96	U 2.6	74	U 4.6	U 0.09	5.7	U 3.9	U 1.0	2,480	U 0.21	12.9	U 11.0
S11(60)	U 0.50	1.5	93.4	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	2,250	U 4.6	U 0.09	U 2.1	U 8.5	I 2.2	9,950	U 0.11	U 1.0	U 11.0
S12(15)	U 0.50	I 0.6	13.7	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	I 32.9	U 4.6	U 0.09	U 2.1	U 3.9	U 1.0	97	U 0.11	I 2.1	U 11.0
S12(30)	U 0.50	U 0.5	10.8	U 0.17	I 0.77	U 1.7	U 0.96	U 2.6	45.4	U 4.6	U 0.09	U 2.1	U 3.9	U 1.0	35.0	U 0.11	U 1.0	U 11.0
S12(60)	U 0.50	I 0.6	141.0	U 0.17	2.20	U 1.7	I 1.10	U 2.6	1,000	U 4.6	U 0.09	U 2.1	U 3.9	U 1.0	4,640	U 0.11	U 1.0	U 11.0
S13(15)	U 0.50	U 0.5	14.6	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	U 25.0	U 4.6	U 0.09	U 2.1	U 8.5	U 1.0	230	U 0.11	I 3.1	U 11.0
S13(30)	U 0.50	U 0.5	23.9	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	61	U 4.6	U 0.09	I 3.8	U 8.5	U 1.0	401	U 0.11	I 2.5	U 11.0
S13(60)	U 0.50	I 0.6	107.0	U 0.17	U 0.33	U 1.7	I 2.30	U 2.6	2,960	U 4.6	U 0.09	6.2	U 8.5	U 1.0	8,550	U 0.11	U 1.0	U 11.0
S14(15)	U 0.50	U 0.5	15.4	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	U 25.0	U 4.6	U 0.09	I 3.4	U 8.5	U 1.0	319	U 0.11	I 6.6	U 11.0
S14(30)	U 0.50	U 0.5	93.4	U 0.17	U 0.33	U 1.7	I 1.20	U 2.6	I 28.0	U 4.6	U 0.09	5.5	U 8.5	U 1.0	3,160	U 0.11	10.5	U 11.0
S14(60)	U 0.50	2.1	80.7	U 0.17	U 0.33	U 1.7	U 1.90	U 2.6	3,230	U 4.6	U 0.09	U 4.2	U 3.9	U 1.0	10,500	U 0.11	U 1.0	U 11.0
S15(15)	U 0.50	U 0.5	11.3	U 0.17	I 0.89	U 1.7	U 0.96	U 2.6	U 25.0	U 4.6	U 0.09	U 2.1	U 8.5	U 1.0	103	U 0.11	I 1.4	U 11.0
S15(30)	U 0.50	U 0.5	11.2	U 0.17	I 0.87	U 1.7	U 0.96	U 2.6	U 25.0	U 4.6	U 0.09	U 2.1	U 8.5	U 1.0	153	U 0.11	I 1.5	U 11.0
S15(60)	U 0.50	U 0.5	76.5	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	1,900	U 4.6	U 0.09	U 2.1	U 8.5	U 1.0	9,670	U 0.11	U 1.0	U 11.0
S16(15)	U 0.50	U 0.5	46.9	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	34	U 4.6	U 0.09	5.0	U 42.5	U 1.0	2,170	U 0.11	5.3	U 55.0
S16(30)	U 0.50	U 0.5	13.6	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	382	U 4.6	U 0.09	3.2	U 8.5	U 1.0	180	U 0.11	1.5	U 11.0
S16(60)	U 0.50	1.2	84.6	U 0.17	U 0.33	U 8.5	U 4.80	U 2.6	2,260	U 4.6	U 0.09	25.2	U 42.5	U 1.0	8,990	U 0.11	U 1.0	U 55.0
S17(15)	U 0.50	I 1.0	24.6	U 0.17	1.90	9.9	I 3.20	U 2.6	U 25.0	U 4.6	U 0.09	I 4.0	U 8.5	U 1.0	462	U 0.11	36.0	U 11.0
S17(30)	U 0.50	I 0.5	75.8	U 0.17	2.40	I 3.2	I 1.30	U 2.6	U 25.0	U 4.6	U 0.09	U 2.1	U 8.5	U 1.0	2,110	U 0.11	10.6	U 11.0
S17(60)	U 0.50	1.0	106.0	U 0.17	4.40	U 1.7	U 0.96	U 2.6	3,120	U 4.6	U 0.09	U 2.1	U 8.5	U 1.0	9,370	U 0.11	U 1.0	U 11.0
S18R(15)	U 0.50	1.0	21.9	U 0.17	U 0.33	8.0	I 2.80	U 2.6	I 27.7	U 4.6	U 0.09	7.4	U 8.5	U 1.0	446	U 0.11	18.7	U 11.0
S18R(30)	U 0.50	U 0.5	49.7	U 0.17	U 0.33	I 3.8	U 0.96	U 2.6	U 25.0	U 4.6	U 0.09	5.7	U 8.5	U 1.0	1,020	U 0.11	I 8.8	U 11.0
S18R(60)	U 0.50	1.2	91.6	U 0.17	U 0.33	U 8.5	U 4.80	U 2.6	3,130	U 4.6	U 0.09	25.1	U 8.5	U 1.0	8,130	U 0.11	U 1.0	U 11.0
S19(15)	U 0.50	U 0.5	12.5	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	744	U 4.6	U 0.09	U 2.1	U 3.9	U 1.0	8	U 0.11	U 1.0	672.0
S19(30)	U 0.50	U 0.5	112.0	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	341	U 4.6	U 0.09	5.5	U 3.9	U 1.0	1,660	U 0.11	I 1.5	U 11.0
S19(60)	U 0.50	U 0.5	32.5	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	U 25.0	U 4.6	U 0.09	I 3.5	U 3.9	U 1.0	302	U 0.11	I 1.4	U 11.0
S20(15)	U 0.50	U 0.5	17.8	U 0.17	1.20	U 1.7	U 0.96	U 2.6	U 25.0	U 4.6	U 0.09	U 2.1	U 3.9	U 1.0	126.0	U 0.11	I 1.5	U 11.0
S20(30)	U 0.50	I 0.8	96.2	U 0.17	2.20	U 1.7	U 0.96	U 2.6	878	U 4.6	U 0.09	U 2.1	U 3.9	U 1.0	1,490	U 0.11	I 1.2	U 11.0
S20(60)	U 0.50	1.6	137.0	U 0.17	2.60	I 1.8	U 0.96	I 3.4	2,000	U 4.6	U 0.09	U 2.1	U 3.9	U 1.0	2,790	U 0.11	I 1.6	U 11.0
S21(15)	U 0.50	9.2	11.0	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	1,040	U 4.6	U 0.09	U 2.1	U 3.9	U 1.0	38.1	U 0.11	I 1.2	U 11.0
S21(30)	U 0.50	I 0.7	96.9	U 0.17	I 0.36	U 1.7	U 0.96	U 2.6	148	U 4.6	U 0.09	I 4.6	U 3.9	U 1.0	1,170	U 0.11	I 1.5	U 11.0
S21(60)	U 0.50	I 0.8	140.0	U 0.17	I 0.36	U 1.7	U 0.96	U 2.6	1,310	U 4.6	U 0.09	I 4.9	U 3.9	U 1.0	2,200	U 0.11	U 1.0	U 11.0
MCLs	6.0 PDWS	10.0 PDWS	2,000 PDWS	4.0 PDWS	5.0 PDWS	100 PDWS	140 GCTL	1,000 SDWS	300 SDWS	15.0 PDWS	2.0 PDWS	100 PDWS	50 PDWS	100 SDWS	160 PDWS	2.0 PDWS	49 GCTL	5,000 SDWS

MIAMI-DADE SOLID WASTE MANAGEMENT DEPARTMENT
TECHNICAL SERVICES AND ENVIRONMENTAL AFFAIRS DIVISION

Table 3. Groundwater Monitoring - Volatile Organic Substances Detected

SITE: *South Dade Landfill*
EVENT: *2nd Semiannual Monitoring Event 2021*

Pace Analytical Laboratory

DETECTED PARAMETERS ONLY, *µg/L*								
Well	**EPA 8011 & 8260 Parameters**	**Chloroform**	**Bromodichloro-methane**	**Dibromochloro-methane**	**Chlorobenzene**	**Bromoform**	**Toluene**	**o-Xylene**
S1(10)	BDL							
S1(15)	BDL							
S1(60)	BDL							
S2(15)	BDL							
S2(30)		0.55 I						
S2(60)		323.0	53.6	40.6		106.0		
S3(15)	BDL							
S3(30)	BDL							
S3(60)	BDL							
S4(15)					I 0.37			
S4(30)					I 0.67			
S4(60)	BDL							
S5(15)	BDL							
S5(30)	BDL							
S5(60)	BDL							
S6(15)	BDL							
S6(30)	BDL							
S6(60)	BDL							
S7(15)	BDL							
S7(30)	BDL							
S7(60)	BDL							
S8(15)	BDL							
S8(30)	BDL							
S8(60)	BDL							
S9(15)	BDL							
S9(30)	BDL							
S9(60)		2.9						
S10(15)					I 0.69			
S10(30)					I 0.67			
S10(60)	BDL							
S11(15)	BDL							
S11(30)	BDL							
S11(60)	BDL							
S12(15)	BDL							
S12(30)	BDL							
S12(60)	BDL							
S13(15)	BDL							
S13(30)	BDL							
S13(60)	BDL							
S14(15)	BDL							
S14(30)	BDL							
S14(60)	BDL							
S15(15)	BDL							
S15(30)	BDL							
S15(60)	BDL							
S16(15)	BDL							
S16(30)	BDL							
S16(60)	BDL							
S17(15)					5.0			
S17(30)	BDL							
S17(60)	BDL							
S18R(15)	BDL							
S18R(30)	BDL							
S18R(60)	BDL							
S19(15)							I 0.37	
S19(30)	BDL							
S19(60)	BDL							
S20(15)	BDL							
S20(30)	BDL							
S20(60)	BDL							
S21(15)	BDL							
S21(30)	BDL							
S21(60)	BDL							
MCLs *		70			100		1,000	10,000 (Total Xyl)

** FAC 62-550.310 Drinking Water Standards or 62-777 CTLs (µg/L). BDL = ALL VOC BELOW DETECTION LIMITS.*

MIAMI-DADE DEPARTMENT OF SOLID WASTE MANAGEMENT
TECHNICAL SERVICES AND ENVIRONMENTAL AFFAIRS DIVISION

Table 1
GROUNDWATER MONITORING RESULTS - GENERAL CHEMISTRY PARAMETERS

SITE: *South Dade Landfill*
EVENT: *1st Semiannual Monitoring 2021*
LABORATORY: *Pace Analytical Laboratory*
SAMPLED BY: *Pace Analytical Laboratory*

Sampled: *2/2/2021*
Resampled: *3/10/2021*

Well	Sampling Date	Turbidity NTU	D.O. mg/L	Conductivity uS/cm	Temp. °C	pH S.U.	Color/Sheen	TDS mg/L	Nitrate mg/L	Chloride mg/L	Ammonia (N) mg/L
S-1 (10)	02/10/2021	1.91	0.40	865	26.8	6.99	clear	476	<0.025	1250	0.94
S-1 (15)	01/29/2021	1.91	0.10	761	26.0	7.32	yellow	438	<0.025	93.2	0.96
S-1 (60)	01/29/2021	2.09	0.09	10081	25.9	7.45	tannic	5760	0.046	3180	0.79
S-2 (15)	02/03/2021	7.27	0.36	735	25.75	7.13	yellow	458	<0.025	63.6	1.7
S-2 (15)	3/10/2021	2.05	0.16	748	25.30	6.93	clear	NT	NT	NT	NT
S-2 (30)	01/22/2021	2.96	0.53	4322	25.8	7.00	tannic	2380	0.029	1260	1.3
S-2 (60)	01/22/2021	0.13	0.18	13102	25.6	6.83	tannic	8340	<0.025	3940	0.43
S-3 (15)	02/21/2021	1.11	0.06	2241	28.2	6.89	tan	1340	<0.025	489	11.4
S-3 (30)	02/21/2021	1.64	0.64	17950	29.5	6.57	tan	10900	<0.025	6040	4.0
S-3 (60)	02/21/2021	0.93	0.04	57615	28.6	6.85	tan	25400	<0.025	14400	1.0
S-4 (15)	01/22/2021	4.64	0.12	1859	25.3	6.87	tannic	1000	<0.025	372	5.6
S-4 (30)	02/14/2021	9.48	0.11	4215	26.8	6.93	clear	2410	<0.025	1140	11.2
S-4 (60)	02/10/2021	7.84	0.16	38399	26.2	6.91	clear	24400	<0.025	14200	1.4
S-5 (15)	02/04/2021	8.40	0.49	2368	23.6	6.81	clear	1290	<0.025	560	0.67
S-5 (30)	01/17/2021	0.65	0.38	8028	25.25	7.00	yellow	4670	0.032	2350	0.85
S-5 (60)	01/17/2021	1.98	0.47	44119	25.22	6.87	yellow	27200	<0.025	17200	0.40
S-6 (15)	01/22/2021	0.83	0.60	852	24.7	6.73	tannic	451	<0.025	107	3.1
S-6 (30)	02/10/2021	1.10	0.22	2355	26.2	7.12	clear	1290	<0.025	574	1.3
S-6 (60)	01/22/2021	0.19	0.30	11282	25.6	6.90	tannic	6340	<0.025	3450	0.65
S-7 (15)	01/20/2021	1.06	0.68	979	25.4	6.89	tannic	562	0.077	67.5	12.5
S-7 (30)	01/20/2021	0.16	0.26	4784	26.6	7.09	tannic	2780	<0.025	1340	1.5
S-7 (60)	01/20/2021	0.13	0.27	10252	26.3	7.16	tannic	6440	<0.025	3180	0.62
S-8 (15)	01/20/2021	2.90	0.46	875	26.14	7.49	yellow	422	<0.025	65.2	3.3
S-8 (30)	01/20/2021	0.90	0.28	5194	26.23	7.37	yellow	2960	<0.025	1410	2.4
S-8 (60)	01/20/2021	1.03	0.46	38313	25.52	6.80	yellow	26400	<0.025	14100	0.80
S-9 (15)	01/20/2021	2.08	0.36	899	25.68	7.57	yellow	510	<0.025	111	3.2
S-9 (30)	01/20/2021	0.23	0.27	2017	25.70	7.51	yellow	1120	<0.025	460	1.1
S-9 (60)	01/22/2021	0.15	0.12	40139	25.2	6.59	tannic	26200	<0.025	15400	0.72
S-10 (15)	02/14/2021	0.35	0.16	2262	25.3	6.94	clear	1280	<0.025	505	15.3
S-10 (30)	02/14/2021	1.93	0.11	3894	26.9	6.94	clear	2180	<0.025	976	18.0
S-10 (60)	01/29/2021	1.25	1.74	3796	25.6	7.41	tannic	29200	0.071	16700	0.81
S-11 (15)	02/14/2021	1.28	0.10	1392	26.6	6.85	clear	782	<0.025	8280	6.4
S-11 (30)	01/29/2021	4.19	0.09	24396	26.9	6.92	tannic	16700	0.036	19000	7.5
S-11 (60)	01/29/2021	8.39	0.84	49362	26.0	7.26	tannic	35800	0.42	226	<0.035
S-12 (15)	02/03/2021	17.7	0.24	986	24.60	7.00	yellow	658	<0.025	81.3	1.4
S-12 (30)	02/10/2021	6.65	0.41	945	25.6	7.04	clear	524	0.096	150	0.23
S-12 (60)	01/22/2021	0.32	0.26	29366	25.6	6.68	tannic	18400	<0.025	10400	0.55
S-13 (15)	01/17/2021	0.24	0.12	1973	23.7	7.19	tannic	1000	<0.025	375	1.2
S-13 (30)	01/17/2021	0.18	0.31	2956	24.3	7.37	tannic	1700	0.030	701	1.7
S-13 (60)	01/17/2021	0.37	0.12	47983	24.3	7.04	tannic	29000	<0.12	16500	1.1
S-14 (15)	01/17/2021	8.18	0.16	1980	24.2	7.15	tannic	1010	<0.025	408	5.0
S-14 (30)	01/17/2021	0.22	0.14	24281	25.0	6.98	tannic	13200	<0.025	6950	7.9
S-14 (60)	01/17/2021	0.21	0.08	53668	25.6	7.13	tannic	35000	<0.12	19600	0.82
S-15 (15)	01/17/2021	0.53	0.20	1729	26.17	7.26	yellow	1270	<0.025	401	0.99
S-15 (30)	01/17/2021	0.65	0.12	4706	25.56	7.06	yellow	3280	<0.025	1340	0.42
S-15 (60)	01/17/2021	0.92	0.48	25290	25.34	6.69	yellow	31600	<0.12	19200	0.50
S-16 (15)	02/04/2021	0.42	0.57	20711	25.7	6.55	clear	14100	<0.025	6610	5.5
S-16 (30)	02/21/2021	0.71	0.10	19144	25.1	6.78	tan	12000	<0.025	6140	5.5
S-16 (60)	02/04/2021	0.28	0.29	47503	25.7	6.59	clear	36200	<0.025	18400	0.92
S-17 (15)	01/17/2021	3.29	0.08	2578	27.6	7.04	tannic	1380	<0.12	511	35.7
S-17 (30)	01/17/2021	1.25	0.25	21799	27.9	6.94	tannic	13100	<0.025	6880	5.8
S-17 (60)	01/17/2021	1.22	0.16	2792	27.7	7.27	tannic	6620	1.2	6170	<0.035
S-18R (15)	01/17/2021	4.45	0.11	2932	26.8	7.14	tannic	1500	<0.25	592	42.9
S-18R (30)	01/17/2021	2.34	0.12	6924	26.8	7.12	tannic	5420	0.075	3050	12.4
S-18R (60)	02/21/2021	0.43	0.12	44891	27.7	6.83	tan	31500	<0.025	19100	0.75
S-19 (15)	01/20/2021	0.27	1.08	1187	26.1	6.85	tannic	690	<0.025	183	2.0
S-19 (30)	01/20/2021	0.46	0.22	11777	25.9	7.07	tannic	7380	<0.025	3700	1.5
S-19 (60)	01/20/2021	0.24	0.20	26056	26.0	6.96	tannic	17500	<0.025	9240	1.0
S-20 (15)	02/03/2021	1.26	0.07	550	25.16	7.21	yellow	380	<0.025	98.6	1.0
S-20 (30)	02/03/2021	1.54	0.15	9381	25.43	6.92	yellow	5240	<0.025	2850	1.2
S-20 (60)	02/03/2021	2.34	0.47	19627	24.77	7.15	yellow	12600	<0.025	6500	1.0
S-21 (15)	01/29/2021	11.72	0.32	587	24.9	7.20	tannic	327	0.035	26.2	0.45
S-21 (30)	02/14/2021	0.21	0.19	9269	26.0	7.09	clear	5240	<0.025	3060	0.54
S-21 (60)	01/29/2021	1.29	0.08	14347	25.7	7.35	tannic	1810	0.14	283	0.21
MCLs						6.5-8.5 SDWS		500 mg/L SDWS	10 mg/L PDWS	250 mg/L SDWS	

NT= Not Tested
PDWS= Primary Drinking Water Standard
SDWS= Secondary Drinking Water Standard

MIAMI-DADE DEPARTMENT OF SOLID WASTE MANAGEMENT
TECHNICAL SERVICES AND ENVIRONMENTAL AFFAIRS DIVISION

Table 2
GROUNDWATER MONITORING RESULTS - METALS

SITE: *South Dade Landfill*
EVENT: *1st Semiannual Monitoring 2021*
LABORATORY: *Pace Analytical Laboratory*
SAMPLED BY: *Pace Analytical Laboratory*

Sampled: *2/2/2021*
Resampled: *3/10/2021*

Well	Sampling Date	Sb ug/L	As ug/L	Ba ug/L	Be ug/L	Cd ug/L	Cr ug/L	Co ug/L	Cu ug/L	Fe ug/L	Pb ug/L	Hg ug/L	Ni ug/L	Se ug/L	Ag ug/L	Na ug/L	Tl ug/L	Va ug/L	Zn ug/L
S-1 (10)	02/10/2021	<0.50	1.8	14.6	<0.17	<0.33	<1.7	<0.96	<2.6	432	<4.6	<0.090	<2.1	<8.5	<1.0	69.2	<0.11	1.4	<11.0
S-1 (15)	01/29/2021	<0.50	2.4	14.7	<0.17	<0.33	<1.7	<0.96	<2.6	489	<4.6	<0.090	<2.1	<8.5	<1.0	55.5	<0.11	1.5	35.3
S-1 (60)	01/29/2021	<0.50	0.66	108	<0.17	<0.33	<1.7	<0.96	<2.6	573	<4.6	<0.090	<2.1	<8.5	<1.0	1650	<0.11	<1.0	<11.0
S-2 (15)	02/03/2021	<0.50	10.4	11.9	<0.17	<0.33	<1.7	<0.96	<2.6	64.0	<4.6	<0.090	<2.1	<8.5	<1.0	39.4	<0.11	<1.0	<11.0
S-2 (15)	3/10/2021	NT	<0.50	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
S-2 (30)	01/22/2021	<0.50	1.3	39.0	<0.17	<0.33	<1.7	<0.96	<2.6	379	<4.6	<0.090	<2.1	<8.5	<1.0	624	<0.11	2.7	<11.0
S-2 (60)	01/22/2021	<1.0	0.94	93.5	<0.17	<0.66	<1.7	2.4	5.8	<25.0	<4.6	<0.090	4.3	<8.5	<1.0	2180	<0.21	6.6	<11.0
S-3 (15)	02/21/2021	<0.50	3.0	29.0	<0.17	<0.33	5.6	<0.96	<2.6	155	<4.6	<0.090	3.2	<8.5	<1.0	280	<0.11	5.8	<11.0
S-3 (30)	02/21/2021	<0.50	0.88	130	<0.17	<0.33	<1.7	<0.96	<2.6	689	<4.6	<0.090	<2.1	<8.5	<1.0	3310	<0.11	2.1	<11.0
S-3 (60)	02/21/2021	<0.50	0.72	129	<0.17	<0.33	<1.7	16.8	<2.6	988	<4.6	<0.090	<2.1	<8.5	<1.0	7570	<0.11	1.1	<11.0
S-4 (15)	01/22/2021	<0.50	0.66	21.9	<0.17	<0.33	2.2	<0.96	<2.6	90.5	<4.6	<0.090	<2.1	<8.5	<1.0	222	<0.11	5.5	<11.0
S-4 (30)	02/14/2021	<0.50	0.72	33.1	<0.17	<0.33	2.0	1.0	<2.6	80.0	<4.6	<0.090	<2.1	<8.5	<1.0	575	<0.11	5.3	<11.0
S-4 (60)	02/10/2021	<2.5	2.7	129	<0.17	<1.6	<1.7	<0.96	<2.6	2730	<4.6	<0.090	<2.1	<8.5	<1.0	7350	<0.53	1.1	<11.0
S-5 (15)	02/04/2021	<0.50	0.52	13.4	<0.17	<0.33	<1.7	<0.96	<2.6	677	<4.6	<0.090	<2.1	<8.5	<1.0	348	<0.11	<1.0	<11.0
S-5 (30)	01/17/2021	<0.50	<0.50	34.2	<0.17	<0.33	<1.7	<0.96	<2.6	45.2	<4.6	<0.090	<2.1	<8.5	<1.0	1350	<0.11	2.2	<11.0
S-5 (60)	01/17/2021	<0.50	0.60	62.3	<0.17	<0.33	<1.7	<0.96	<2.6	817	<4.6	<0.090	<2.1	<42.5	<1.0	9040	<0.11	<5.0	<11.0
S-6 (15)	01/22/2021	<0.50	<0.50	25.8	<0.17	<0.33	<1.7	1.2	<2.6	<25.0	<4.6	<0.090	<2.1	<8.5	<1.0	65	<0.11	1.7	<11.0
S-6 (30)	02/10/2021	<0.50	<0.50	32.2	<0.17	<0.33	<1.7	<0.96	<2.6	<25.0	<4.6	<0.090	<2.1	<8.5	<1.0	298	<0.11	1.0	<11.0
S-6 (60)	01/22/2021	<0.50	<0.50	111	<0.17	<0.66	<1.7	1.2	<2.6	675	<4.6	<0.090	<2.1	<8.5	<1.0	1900	<0.11	<1.0	<11.0
S-7 (15)	01/20/2021	<0.50	0.57	24.7	<0.17	<0.33	<1.7	<0.96	<2.6	318	<4.6	<0.090	<2.1	<8.5	<1.0	66.8	<0.11	<1.0	13.4
S-7 (30)	01/20/2021	<0.50	0.60	56.3	<0.17	<3.3	<1.7	<0.96	<2.6	134	<4.6	<0.090	<2.1	<8.5	<1.0	759	<0.11	2.6	<11.0
S-7 (60)	01/20/2021	<0.50	3.6	92.2	<0.17	<0.33	<1.7	<0.96	<2.6	734	<4.6	<0.090	<2.1	<8.5	<1.0	1850	<0.11	1.7	<11.0
S-8 (15)	01/20/2021	<0.50	1.6	13.0	<0.17	<0.33	2.4	<0.96	<2.6	60.0	<4.6	<0.090	<2.1	<8.5	<1.0	49	<0.11	3.5	<11.0
S-8 (30)	01/20/2021	<0.50	0.60	46.7	<0.17	<1.6	<1.7	<0.96	<2.6	<25.0	<4.6	<0.090	<2.1	<8.5	<1.0	783	<0.11	3.0	<11.0
S-8 (60)	01/20/2021	<0.50	1.8	131	<0.17	<1.6	<1.7	<0.96	<2.6	2640	<4.6	<0.090	<2.1	<8.5	<1.0	7740	<0.11	<1.0	<11.0
S-9 (15)	01/20/2021	<0.50	0.91	11.2	<0.17	<0.33	<1.7	<0.96	<2.6	<25.0	<4.6	<0.090	<2.1	<8.5	<1.0	79.6	<0.11	2.7	<11.0
S-9 (30)	01/20/2021	<0.50	0.53	20.4	<0.17	<0.33	<1.7	<0.96	<2.6	<25.0	<4.6	<0.090	<2.1	<8.5	<1.0	260	<0.11	1.7	<11.0
S-9 (60)	01/22/2021	<5.0	<5.0	130	<0.17	<0.66	<1.7	2.7	2.6	1120	<4.6	<0.090	4.1	<8.5	<1.0	7740	<1.1	1.9	<11.0
S-10 (15)	02/14/2021	<0.50	1.1	20.1	<0.17	<0.33	2.7	<0.96	<2.6	<25.0	<4.6	<0.090	<2.1	<8.5	<1.0	298	<0.11	7.2	<11.0
S-10 (30)	02/14/2021	<0.50	0.68	33.2	<0.17	0.35	3.0	<0.96	<2.6	<25.0	<4.6	<0.090	<2.1	<8.5	<1.0	535	<0.11	9.8	<11.0
S-10 (60)	01/29/2021	<0.50	1.4	102	<0.17	<0.33	<1.7	1.4	<2.6	2780	<4.6	<0.090	<2.1	<8.5	<1.0	9070	<0.11	1.5	<11.0
S-11(15)	02/14/2021	<0.50	0.65	18.0	<0.17	<0.33	2.5	<0.96	<2.6	322	<4.6	<0.090	<2.1	<8.5	<1.0	136	<0.11	6.0	<11.0
S-11 (30)	01/29/2021	<0.50	0.72	117	<0.17	<0.33	<1.7	<0.96	<2.6	202	<4.6	<0.090	<2.1	<8.5	<1.0	4540	<0.11	7.8	21.0
S-11 (60)	01/29/2021	<0.50	1.1	82.3	<0.17	<0.33	<1.7	<0.96	<2.6	236	<4.6	<0.090	3.9	<17.0	<1.0	10200	<0.11	1.1	<11.0
S-12 (15)	02/03/2021	<0.50	1.4	13.3	<0.17	<0.33	1.8	<0.96	<2.6	277	<4.6	<0.090	<2.1	<8.5	<1.0	73.7	<0.11	2.8	<11.0
S-12 (30)	02/10/2021	<0.50	0.72	12.4	<0.17	<0.33	<1.7	<0.96	<2.6	<25.0	<4.6	<0.090	<2.1	<8.5	<1.0	90.1	<0.11	1.5	<11.0
S-12 (60)	01/22/2021	<2.5	<2.5	197	<0.17	<0.66	<1.7	<0.96	<2.6	1380	<4.6	<0.090	<2.1	<8.5	<1.0	5990	<0.53	<1.0	<11.0
S-13 (15)	01/17/2021	<0.50	<0.50	14.0	<0.17	<0.33	<1.7	<0.96	<2.6	<25.0	<4.6	<0.090	<2.1	<8.5	<1.0	219	<0.11	3.0	<11.0
S-13 (30)	01/17/2021	<0.50	<0.50	22.4	<0.17	<0.33	<1.7	<0.96	<2.6	<25.0	<4.6	<0.090	<2.1	<8.5	<1.0	363	<0.11	2.5	<11.0
S-13 (60)	01/17/2021	<0.50	0.71	112	<0.17	<0.33	<1.7	<0.96	<2.6	3610	<4.6	<0.090	<2.1	<42.5	<1.0	8810	<0.11	<5.0	<11.0
S-14 (15)	01/17/2021	<0.50	<0.50	14.3	<0.17	<0.33	2.5	<0.96	<2.6	<25.0	<4.6	<0.090	<2.1	<8.5	<1.0	239	<0.11	6.7	<11.0
S-14 (30)	01/17/2021	<0.50	0.52	103	<0.17	<0.33	1.7	<0.96	<2.6	47.2	<4.6	<0.090	<2.1	<8.5	<1.0	2170	<0.11	11.3	<11.0
S-14 (60)	01/17/2021	<0.50	1.5	83.6	<0.17	<0.33	<1.7	<0.96	<2.6	3190	<4.6	<0.090	<2.1	<42.5	<1.0	3980	<0.11	<5.0	<11.0
S-15 (15)	01/17/2021	<0.50	<0.50	15.5	<0.17	<0.33	<1.7	<0.96	<2.6	<25.0	<4.6	<0.090	<2.1	<8.5	<1.0	197	<0.11	1.1	<11.0
S-15 (30)	01/17/2021	<0.50	<0.50	37.6	<0.17	<0.33	<1.7	<0.96	<2.6	39.0	<4.6	<0.090	<2.1	<8.5	<1.0	782	<0.11	1.3	<11.0
S-15 (60)	01/17/2021	<0.50	<0.50	73.3	<0.17	<0.33	<1.7	<0.96	<2.6	1810	<4.6	<0.090	<2.1	<42.5	<1.0	9700	<0.11	7.0	<11.0
S-16 (15)	02/04/2021	<0.50	<0.50	71.2	<0.17	<0.33	<1.7	<0.96	<2.6	45.0	<4.6	<0.090	<2.1	<8.5	<1.0	3700	<0.11	6.5	<11.0
S-16 (30)	02/21/2021	<0.50	0.64	68.5	<0.17	<0.33	<1.7	<0.96	<2.6	71.7	<4.6	<0.090	<2.1	<8.5	<1.0	3490	<0.11	7.1	<11.0
S-16 (60)	02/04/2021	<0.50	1.2	86.1	<0.17	<0.33	<1.7	1.2	<2.6	2230	<4.6	<0.090	<2.1	<17.0	<1.0	9810	<0.11	<1.0	<11.0
S-17 (15)	01/17/2021	<0.50	0.66	24.5	<0.17	<0.33	5.8	1.3	<2.6	35.1	<4.6	<0.090	<2.1	<8.5	<1.0	324	<0.11	18.2	<11.0
S-17 (30)	01/17/2021	<0.50	<0.50	106	<0.17	<0.33	<1.7	<0.96	<2.6	40.1	<4.6	<0.090	<2.1	<8.5	<1.0	3810	<0.11	6.3	<11.0
S-17 (60)	01/17/2021	<0.50	3.0	41.2	<0.17	<0.33	<1.7	<0.96	<2.6	42.4	<4.6	<0.090	<2.1	<8.5	<1.0	2970	<0.11	2.9	124
S-18R (15)	01/17/2021	<0.50	1.0	34.2	<0.17	<0.33	6.4	2.9	<2.6	222	<4.6	<0.090	3.1	<8.5	<1.0	366	<0.11	15.0	<11.0
S-18R (30)	01/17/2021	<0.50	<0.50	73.0	<0.17	<0.33	2.4	<0.96	<2.6	55.9	<4.6	<0.090	<2.1	<8.5	<1.0	1620	<0.11	6.6	<11.0
S-18R (60)	02/21/2021	<0.50	1.5	98.6	<0.17	<0.33	<1.7	<1.9	<5.2	3300	<4.6	<0.090	<2.1	<17.0	<1.0	9860	<0.11	<2.0	<11.0
S-19 (15)	01/20/2021	<0.50	<0.50	26.4	<0.17	<0.33	<1.7	<0.96	<2.6	27.7	<4.6	<0.090	<2.1	<8.5	<1.0	115	<0.11	<1.0	<11.0
S-19 (30)	01/20/2021	<0.50	<0.50	152	<0.17	<3.3	<1.7	<0.96	<2.6	177	<4.6	<0.090	<2.1	<8.5	<1.0	2160	<0.11	1.2	<11.0
S-19 (60)	01/20/2021	<0.50	<1.0	145	<0.17	<3.3	<1.7	<0.96	<2.6	927	<4.6	<0.090	<2.1	<8.5	<1.0	5380	<0.11	<1.0	24.8
S-20 (15)	02/03/2021	<0.50	0.53	12.3	<0.17	<0.33	<1.7	<0.96	<2.6	<25.0	<4.6	<0.090	<2.1	<8.5	<1.0	53.7	<0.11	<1.0	<11.0
S-20 (30)	02/03/2021	<0.50	1.1	87.9	<0.17	<0.66	<1.7	<0.96	<2.6	894	<4.6	<0.090	<2.1	<8.5	<1.0	1460	<0.11	<1.0	<11.0
S-20 (60)	02/03/2021	<0.50	2.4	160	<0.17	<1.6	<1.7	<0.96	2.8	2060	<4.6	<0.090	<2.1	<8.5	<1.0	3330	<0.11	1.5	<11.0
S-21 (15)	01/29/2021	<0.50	5.4	9.2	<0.17	<0.33	<1.7	<0.96	<2.6	314	<4.6	<0.090	<2.1	<8.5	<1.0	17.5	<0.11	<1.0	<11.0
S-21 (30)	02/14/2021	<0.50	0.59	102	<0.17	<0.33	<1.7	<0.96	<2.6	447	<4.6	<0.090	<2.1	<8.5	<1.0	1440	<0.11	<1.0	<11.0
S-21 (60)	01/29/2021	<0.50	0.92	23.3	<0.17	<0.33	<1.7	<0.96	<2.6	134	<4.6	<0.090	<2.1	<8.5	<1.0	78.1	<0.11	1.0	84.2
MCLs		**6.0 ug/L PDWS**	**10 ug/L PDWS**	**2000 ug/L PDWS**	**4.0 ug/L PDWS**	**5.0 ug/L PDWS**	**100 ug/L PDWS**		**1000 ug/L SDWS**	**300 ug/L SDWS**	**15 ug/L PDWS**	**2.0 ug/L PDWS**	**100 ug/L PDWS**	**50 ug/L PDWS**	**100 ug/L SDWS**	**160 ug/L PDWS**	**2.0 ug/L PDWS**		**5000 ug/L SDWS**

NT= Not Tested
PDWS= Primary Drinking Water Standard
SDWS= Secondary Drinking Water Standard

MIAMI-DADE DEPARTMENT OF SOLID WASTE MANAGEMENT
TECHNICAL SERVICES AND ENVIRONMENTAL AFFAIRS DIVISION

Table 3
GROUNDWATER MONITORING RESULTS - DETECTED VOLATILE ORGANIC COMPOUNDS

SITE: *South Dade Landfill*
EVENT: *1st Semiannual Monitoring 2021*
LABORATORY: *Pace Analytical Laboratory* **Sampled:** *2/2/2021*
SAMPLED BY: *Pace Analytical Laboratory* **Resampled:** *N/A*

DETECTED PARAMETERS ONLY, *µg/L*							
Well	**EPA 8011 & 8260 Parameters**	**1,4-Dichlorobenzene**	**Bromodichloro-methane**	**Bromoform**	**Chlorobenzene**	**Chloroform**	**Dibromochloro-methane**
S-1 (10)	BDL						
S-1 (15)	BDL						
S-1 (60)	BDL						
S-2 (15)	BDL						
S-2 (30)	BDL						
S-2 (60)			3.2	4.8		21.6	2.6
S-3 (15)	BDL						
S-3 (30)	BDL						
S-3 (60)	BDL						
S-4 (15)	BDL						
S-4 (30)	BDL						
S-4 (60)	BDL						
S-5 (15)	BDL						
S-5 (30)	BDL						
S-5 (60)	BDL						
S-6 (15)	BDL						
S-6 (30)	BDL						
S-6 (60)	BDL						
S-7 (15)	BDL						
S-7 (30)	BDL						
S-7 (60)	BDL						
S-8 (15)	BDL						
S-8 (30)	BDL						
S-8 (60)	BDL						
S-9 (15)	BDL						
S-9 (30)	BDL						
S-9 (60)						0.58 I	
S-10 (15)					0.63 I		
S-10 (30)					0.58 I		
S-10 (60)	BDL						
S-11(15)	BDL						
S-11 (30)	BDL						
S-11 (60)	BDL						
S-12 (15)	BDL						
S-12 (30)	BDL						
S-12 (60)	BDL						
S-13 (15)	BDL						
S-13 (30)	BDL						
S-13 (60)	BDL						
S-14 (15)	BDL						
S-14 (30)	BDL						
S-14 (60)	BDL						
S-15 (15)	BDL						
S-15 (30)	BDL						
S-15 (60)	BDL						
S-16 (15)	BDL						
S-16 (30)	BDL						
S-16 (60)	BDL						
S-17 (15)		0.35 I			1.1		
S-17 (30)	BDL						
S-17 (60)	BDL						
S-18R (15)	BDL						
S-18R (30)	BDL						
S-18R (60)	BDL						
S-19 (15)	BDL						
S-19 (30)	BDL						
S-19 (60)	BDL						
S-20 (15)	BDL						
S-20 (30)	BDL						
S-20 (60)	BDL						
S-21 (15)	BDL						
S-21 (30)	BDL						
S-21 (60)	BDL						
MCLs *		75			100		

** FAC 62-550.310 Drinking Water Standards (µg/L). BDL = ALL VOC BELOW DETECTION LIMITS.*

MIAMI-DADE SOLID WASTE MANAGEMENT DEPARTMENT - TECHNICAL SERVICES AND ENVIRONMENTAL AFFAIRS DIVISION

Table 1. Groundwater Monitoring - General Parameters

SITE: *South Dade Landfill* **LABORATORY:** *Pace Analytical*

EVENT: *2nd Semiannual Monitoring 2020* **SAMPLED BY:** *Pace Analytical*

Well	Sampling Date	Turbidity *NTU*	DO *mg/L*	S. Cond. *umhos/cm*	Temp. *Deg. C*	pH *pH units*	Color / Sheen	TDS *mg/L*	NO_3^-- N *mg/L*	NO_3^-- N *Resampling*	Cl^- *mg/L*	$NH3^+$- N *mg/L*
S1(10)	07/27/20	3.06	0.16	515	28.3	7.4	Clear	275	0.620	N/A	35	U 0.035
S1(15)	07/27/20	2.10	0.10	587	28.3	7.4	Clear	304	0.590	N/A	39	U 0.035
S1(60)	07/27/20	1.59	0.07	9,814	26.1	7.7	Clear	5,760	U 0.025	N/A	3,330	0.69
S2(15)	07/30/20	5.42	0.46	687	27.3	7.0	Clear	417	U 0.025	N/A	59	1.8
S2(30)	07/31/20	4.32	0.43	5,100	25.9	7.0	Clear	3,150	U 0.025	N/A	1,550	0.84
S2(60)	07/31/20	5.82	0.44	9,870	26.0	6.6	Clear	6,420	U 0.025	N/A	3,210	0.46
S3(15)	07/31/20	4.67	0.61	1,274	29.8	6.7	Clear	784	U 0.025	N/A	185	3.8
S3(30)	07/31/20	10.60	0.46	11,616	30.5	6.8	Clear	8,120	U 0.025	N/A	4,010	3.3
S3(60)	07/31/20	7.37	0.51	35,320	29.6	6.8	Clear	26,600	U 0.025	N/A	13,400	1.1
S4(15)	07/24/20	4.20	0.57	2,625	27.1	7.1	Clear	956	U 0.025	N/A	371	6.5
S4(30)	07/27/20	3.13	0.57	2,308	27.1	7.1	Clear	1,360	U 0.025	N/A	567	13.9
S4(60)	07/24/20	3.11	0.77	40,720	27.0	7.1	Clear	31,400	U 0.025	N/A	17,300	1.0
S5(15)	07/28/20	7.14	0.09	3,238	27.5	7.5	Clear	1,660	U 0.025	N/A	781	0.30
S5(30)	07/28/20	0.68	0.09	3,725	25.5	7.8	Clear	2,310	U 0.025	N/A	1,200	0.41
S5(60)	07/28/20	0.86	0.03	47,515	26.0	7.9	Clear	31,400	I 0.027	N/A	18,600	0.47
S6(15)	07/31/20	1.69	1.59	931	29.9	7.3	Clear	514	U 0.025	N/A	104	3.5
S6(30)	07/31/20	1.17	0.07	10,704	27.3	7.6	Clear	6,260	U 0.025	N/A	3,120	0.26
S6(60)	10/20/20	0.34	0.09	11,294	26.7	7.1	Clear	6,240	I 0.025	N/A	3,610	0.64
S7(15)	07/24/20	3.76	0.21	813	26.7	7.0	Clear	483	1.1	N/A	21	7.6
S7(30)	07/24/20	1.51	0.14	1,339	26.0	7.5	Clear	776	U 0.025	N/A	290	0.86
S7(60)	07/24/20	1.77	0.09	10,173	25.8	7.3	Clear	5,360	U 0.025	N/A	3,070	0.51
S8(15)	07/27/20	3.56	0.56	727	26.7	7.1	Clear	408	U 0.025	N/A	85	0.88
S8(30)	07/27/20	3.65	0.47	4,890	26.9	7.4	Clear	2,650	U 0.025	N/A	1,310	1.3
S8(60)	07/27/20	6.80	0.38	28,950	26.5	7.2	Clear	19,400	U 0.025	N/A	11,300	0.89
S9(15)	07/24/20	3.87	0.62	950	29.7	7.0	Clear	559	U 0.025	N/A	149	2.3
S9(30)	07/24/20	4.18	0.42	1,574	26.2	7.6	Clear	932	U 0.025	N/A	400	0.53
S9(60)	07/24/20	4.02	0.64	34,075	26.3	7.0	Clear	25,800	I 0.029	N/A	13,900	0.85
S10(15)	07/31/20	0.90	0.17	2,417	26.7	7.2	Clear	1,350	U 0.025	N/A	512	19.4
S10(30)	07/28/20	4.21	0.51	5,506	27.6	7.2	Clear	3,150	U 0.025	N/A	1,530	18.8
S10(60)	07/28/20	3.71	0.57	42,601	27.0	7.1	Clear	32,200	U 0.025	N/A	19,300	0.82
S11(15)	07/28/20	4.16	0.47	1,538	28.7	7.1	Clear	660	U 0.025	N/A	158	7.7
S11(30)	07/28/20	0.67	0.58	19,128	28.8	6.9	Clear	13,100	U 0.025	N/A	7,170	7.3
S11(60)	07/27/20	3.92	0.72	44,657	28.0	6.9	Clear	32,600	U 0.025	N/A	19,700	0.58
S12(15)	07/31/20	9.95	2.34	1,471	29.7	7.2	Clear	818	U 0.025	N/A	162	1.7
S12(30)	07/22/20	1.22	0.18	948	25.3	7.5	Clear	990	U 0.025	N/A	174	0.13
S12(60)	07/22/20	1.53	0.13	21,867	25.3	7.2	Clear	14,100	U 0.025	N/A	7,280	0.53
S13(15)	07/22/20	1.37	0.10	1,636	25.2	7.3	Clear	910	I 0.026	N/A	369	1.5
S13(30)	07/23/20	5.27	0.57	2,330	25.5	7.6	Clear	1,350	U 0.025	N/A	649	1.6
S13(60)	07/23/20	7.95	0.74	39,043	25.6	7.0	Clear	29,400	I 0.026	N/A	16,800	1.2
S14(15)	07/31/20	0.70	0.76	1,922	27.3	7.0	Clear	1,040	U 0.025	N/A	190	2.8
S14(30)	07/31/20	0.68	0.62	22,940	26.2	6.9	Clear	14,800	U 0.025	N/A	7,520	7.2
S14(60)	07/31/20	0.86	0.40	49,571	26.6	7.1	Clear	34,200	U 0.025	N/A	19,000	0.84
S15(15)	07/17/20	3.75	0.63	1,345	27.7	7.6	Clear	812	U 0.025	N/A	286	0.63
S15(30)	07/23/20	5.87	0.51	4,367	26.8	7.2	Clear	2,100	U 0.025	N/A	1,110	0.21
S15(60)	07/23/20	4.65	0.63	44,750	26.2	7.1	Clear	35,300	U 0.025	N/A	19,400	0.52
S16(15)	07/28/20	8.10	0.15	3,077	27.3	8.0	Clear	1,570	U 0.025	N/A	651	U 0.035
S16(30)	07/28/20	0.28	0.06	16,361	26.5	7.7	Clear	8,440	U 0.025	N/A	4,630	5.6
S16(60)	07/28/20	0.46	0.05	49,059	26.3	7.9	Clear	32,600	U 0.025	N/A	18,800	0.74
S17(15)	07/17/20	4.34	0.64	3,861	30.1	7.5	Clear	2,090	U 0.025	N/A	802	71.4
S17(30)	07/17/20	3.78	0.62	16,901	30.1	7.4	Clear	10,700	U 0.025	N/A	5,510	8.8
S17(60)	07/17/20	3.68	0.62	43,931	28.5	7.3	Clear	34,200	U 0.025	N/A	18,800	0.80
S18R(15)	07/30/20	4.52	0.48	2,698	28.7	6.8	Clear	1,650	U 0.025	N/A	561	29.0
S18R(30)	07/30/20	3.72	0.45	13,380	29.2	6.9	Clear	8,600	U 0.025	N/A	4,320	9.3
S18R(60)	07/30/20	5.36	0.57	43,258	28.8	6.8	Clear	31,000	U 0.025	N/A	18,400	0.81
S19(15)	07/30/20	3.42	0.47	2,110	27.4	7.0	Clear	1,180	U 0.025	N/A	531	3.1
S19(30)	07/30/20	3.34	0.62	11,015	26.6	7.1	Clear	5,640	U 0.025	N/A	3,670	1.1
S19(60)	07/30/20	3.72	0.54	25,422	26.3	6.7	Clear	17,800	U 0.025	N/A	9,830	0.98
S20(15)	07/28/20	0.63	0.08	1,004	27.0	8.7	Clear	555	U 0.025	N/A	109	1.3
S20(30)	07/28/20	0.15	0.07	12,291	26.6	6.9	Clear	6,980	U 0.025	N/A	3,700	0.68
S20(60)	07/28/20	0.71	0.03	16,310	25.8	7.0	Clear	10,000	U 0.025	N/A	5,110	0.80
S21(15)	07/28/20	1.79	0.10	771	27.3	6.8	Clear	448	0.083	N/A	58.0	U 0.035
S21(30)	07/28/20	0.40	0.10	8,843	25.7	6.9	Clear	4,840	U 0.025	N/A	2,600	0.64
S21(60)	07/28/20	0.60	0.05	16,511	25.7	6.9	Clear	9,280	U 0.025	N/A	5,220	0.37
PDWS: *as per FAC 62-550.310(1)(a)*						6.5 - 8.5 SDWS		500 SDWS	10.0 PDWS		250 SDWS	
SDWS: *as per FAC 62-550.320(1)*												

MIAMI-DADE SOLID WASTE MANAGEMENT DEPARTMENT - TECHNICAL SERVICES AND ENVIRONMENTAL AFFAIRS DIVISION

Table 2. Groundwater Monitoring - Metals

SITE: SOUTH DADE LANDFILL
EVENT: 2nd SEMIANNUAL MONITORING EVENT OF 2020

LABORA *Pace Analytical Laboratory*
SAMPLE *Pace Analytical Laboratory*

Well	Sb µg/L	As µg/L	Ba µg/L	Be µg/L	Cd µg/L	Cr µg/L	Co µg/L	Cu µg/L	Fe µg/L	Pb µg/L	Hg µg/L	Ni µg/L	Se µg/L	Ag µg/L	Na mg/L	Tl µg/L	Va µg/L	Zn µg/L
S1(10)	I 0.83	1.3	11.4	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	U 0.25	U 4.6	U 0.09	U 2.1	U 8.5	U 1.0	22.7	U 0.11	I 8.3	U 11.0
S1(15)	I 0.79	1.2	12.0	U 0.17	U 0.33	U 1.7	U 0.96	I 3.0	U 0.25	U 4.6	U 0.09	U 2.1	U 8.5	U 1.0	26.2	U 0.11	I 6.6	U 11.0
S1(60)	U 0.50	I 0.6	113.0	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	620	U 4.6	U 0.09	U 2.1	U 8.5	U 1.0	1,760	U 0.11	I 1.0	U 11.0
S2(15)	U 0.50	U 0.5	11.2	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	U 0.25	U 4.6	U 0.09	U 2.1	U 8.5	U 1.0	32.3	U 0.11	U 1.0	U 11.0
S2(30)	U 0.50	1.6	55.0	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	800	U 4.6	U 0.09	U 2.1	U 8.5	U 1.0	869	U 0.11	I 1.8	U 11.0
S2(60)	U 0.50	1.2	74.2	U 0.17	U 0.33	U 1.7	U 0.96	I 4.8	255	U 4.6	U 0.09	I 2.6	U 8.5	U 1.0	1,720	U 0.11	I 1.2	U 11.0
S3(15)	U 0.50	2.5	19.3	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	79.8	U 4.6	U 0.09	U 2.1	U 8.5	U 1.0	127	U 0.11	I 2.2	U 11.0
S3(30)	U 0.50	I 0.6	103.0	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	126	U 4.6	U 0.09	U 2.1	U 8.5	U 1.0	2,340	U 0.11	I 1.7	U 11.0
S3(60)	U 0.50	I 1.2	110.0	U 0.17	U 0.33	U 1.7	17.3	U 2.6	7,580	I 5.7	U 0.09	U 2.1	U 8.5	U 1.0	7,580	U 0.11	U 1.0	U 11.0
S4(15)	U 0.50	U 0.5	19.0	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	84	U 4.6	U 0.09	U 2.1	U 8.5	U 1.0	218	U 0.11	I 3.9	U 11.0
S4(30)	U 0.50	I 0.6	24.5	U 0.17	U 0.33	I 1.9	I 1.00	U 2.6	U 0.25	U 4.6	U 0.09	U 2.1	U 8.5	U 1.0	320	U 0.11	I 5.4	U 11.0
S4(60)	U 0.50	1.7	121.0	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	2,670	U 4.6	U 0.09	U 2.1	U 8.5	U 1.0	8,900	U 0.11	U 1.0	U 11.0
S5(15)	U 0.50	I 0.6	19.3	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	65.5	U 4.6	U 0.09	U 2.1	U 8.5	U 1.0	432	U 0.11	I 1.3	U 11.0
S5(30)	U 0.50	U 0.5	23.5	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	U 0.25	U 4.6	U 0.09	U 2.1	U 8.5	U 1.0	654	U 0.11	I 1.6	U 11.0
S5(60)	U 0.50	I 0.6	78.5	U 0.17	U 0.33	U 1.7	U 0.96	U 5.2	1,040	U 4.6	U 0.09	U 2.1	U 8.5	U 1.0	9,120	U 0.11	U 1.0	U 11.0
S6(15)	U 0.50	I 0.7	29.1	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	U 0.25	U 4.6	U 0.09	U 2.1	U 8.5	U 1.0	71.3	U 0.11	I 1.5	U 11.0
S6(30)	U 0.50	U 0.5	103.0	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	1,910	U 4.6	U 0.09	U 2.1	U 8.5	U 1.0	1,940	U 0.11	U 1.0	U 11.0
S6(60)	U 0.50	U 0.5	102.0	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	1,240	U 4.6	U 0.09	U 2.1	U 8.5	U 1.0	1,720	U 0.11	U 1.0	U 11.0
S7(15)	1.90	8.3	15.4	U 0.17	U 0.33	U 1.7	I 1.00	I 4.3	137	U 4.6	U 0.09	I 2.1	U 8.5	U 1.0	41.2	U 0.11	I 2.8	U 11.0
S7(30)	U 0.50	U 0.5	17.1	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	46.8	U 4.6	U 0.09	U 2.1	U 8.5	U 1.0	151	U 0.11	I 1.1	U 11.0
S7(60)	U 0.50	4.2	80.8	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	667	U 4.6	U 0.09	U 2.1	U 8.5	U 1.0	1,610	U 0.11	I 1.2	U 11.0
S8(15)	U 0.50	1.8	12.1	U 0.17	U 0.33	I 2.3	U 0.96	I 3.2	394	U 4.6	U 0.09	U 2.1	U 8.5	U 1.0	50.7	U 0.11	I 1.7	U 11.0
S8(30)	U 0.50	U 0.5	45.8	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	I 32.6	U 4.6	U 0.09	U 2.1	U 8.5	U 1.0	73.4	U 0.11	I 1.6	U 11.0
S8(60)	U 0.50	1.7	128.0	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	2,600	U 4.6	U 0.09	U 2.1	U 8.5	U 1.0	5,810	U 0.11	U 1.0	U 11.0
S9(15)	U 0.50	U 0.5	10.6	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	U 0.25	U 4.6	U 0.09	U 2.1	U 8.5	U 1.0	92.0	U 0.11	I 1.1	U 11.0
S9(30)	U 0.50	U 0.5	15.9	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	U 0.25	U 4.6	U 0.09	U 2.1	U 8.5	U 1.0	199	U 0.11	I 1.1	U 11.0
S9(60)	I 0.60	I 0.8	122.0	U 0.17	U 0.33	U 1.7	I 2.10	U 2.6	41	U 4.6	U 0.09	U 2.1	U 8.5	U 1.0	7,310	U 0.11	I 2.1	U 11.0
S10(15)	U 0.50	U 2.5	20.1	U 0.17	U 0.33	I 3.3	U 0.96	U 2.6	U 0.25	U 4.6	U 0.09	U 2.1	U 8.5	U 1.0	267	U 0.11	I 7.3	U 11.0
S10(30)	U 0.50	I 0.6	44.1	U 0.17	U 0.33	I 2.5	I 1.50	U 2.6	U 0.25	U 4.6	U 0.09	U 2.1	U 8.5	U 1.0	783	U 0.11	I 9.4	U 11.0
S10(60)	U 0.50	1.5	107.0	U 0.17	U 0.33	U 1.7	U 0.96	U 5.2	2,630	U 4.6	U 0.09	U 2.1	U 8.5	U 1.0	9,470	U 0.11	U 1.0	U 11.0
S11(15)	U 0.50	I 0.9	16.8	U 0.17	U 0.33	I 1.8	U 0.96	U 2.6	140	U 4.6	U 0.09	U 2.1	U 8.5	U 1.0	101	U 0.11	I 5.1	U 11.0
S11(30)	U 0.50	I 0.5	98.1	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	264	U 4.6	U 0.09	U 2.1	U 8.5	I 1.2	3,830	U 0.11	I 7.9	U 11.0
S11(60)	U 0.50	1.5	93.4	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	2,250	U 4.6	U 0.09	U 2.1	U 8.5	I 2.2	9,950	U 0.11	U 1.0	U 11.0
S12(15)	U 0.50	4.3	16.3	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	I 28.0	U 4.6	U 0.09	U 2.1	U 8.5	U 1.0	129	U 0.11	I 1.8	U 11.0
S12(30)	U 0.50	U 0.5	12.6	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	60.7	U 4.6	U 0.09	U 2.1	U 8.5	U 1.0	83.7	U 0.11	U 1.0	U 11.0
S12(60)	U 0.50	U 0.5	150.0	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	795	U 4.6	U 0.09	U 2.1	U 8.5	U 1.0	3,830	U 0.11	U 1.0	U 11.0
S13(15)	U 0.50	U 0.5	12.6	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	U 0.25	U 4.6	U 0.09	U 2.1	U 8.5	U 1.0	180	U 0.11	I 1.7	U 11.0
S13(30)	U 0.50	U 0.5	19.9	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	I 30.2	U 4.6	U 0.09	U 2.1	U 8.5	U 1.0	384	U 0.11	I 1.7	U 11.0
S13(60)	U 0.50	I 0.9	104.0	U 0.17	U 0.33	U 1.7	U 0.96	U 5.2	3,210	U 4.6	U 0.09	U 2.1	U 8.5	U 1.0	8,200	U 0.11	U 1.0	U 11.0
S14(15)	U 0.50	U 0.5	15.0	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	U 0.25	U 4.6	U 0.09	U 2.1	U 8.5	U 1.0	205	U 0.11	I 5.4	U 11.0
S14(30)	U 0.50	U 2.5	96.6	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	I 33.8	U 4.6	U 0.09	U 2.1	U 8.5	U 1.0	3,710	U 0.11	I 8.4	U 11.0
S14(60)	U 0.50	U 2.5	75.0	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	2,600	I 5.4	U 0.09	U 2.1	U 8.5	U 1.0	8,740	U 0.11	U 1.0	U 11.0
S15(15)	U 0.50	U 0.5	13.9	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	U 0.25	U 4.6	U 0.09	U 2.1	U 8.5	U 1.0	165	U 0.11	U 1.0	U 11.0
S15(30)	U 0.50	I 0.6	29.8	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	47	U 4.6	U 0.09	U 2.1	U 8.5	U 1.0	591	U 0.11	I 1.1	U 11.0
S15(60)	U 0.50	I 0.5	69.2	U 0.17	U 0.33	U 1.7	U 0.96	U 5.2	1,570	U 9.2	U 0.09	U 2.1	U 8.5	U 1.0	10,300	U 0.11	U 1.0	U 11.0
S16(15)	U 0.50	1.3	20.8	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	U 0.25	U 4.6	U 0.09	U 2.1	U 8.5	U 1.0	386	U 0.11	I 2.1	U 11.0
S16(30)	U 0.50	U 0.5	57.0	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	U 0.25	U 4.6	U 0.09	U 2.1	U 8.5	U 1.0	2,500	U 0.11	I 6.4	U 11.0
S16(60)	U 0.50	1.3	101.0	U 0.17	U 0.33	U 1.7	U 0.96	U 5.2	2,220	U 4.6	U 0.09	U 2.1	U 8.5	U 1.0	9,830	U 0.11	U 1.0	U 11.0
S17(15)	U 0.50	I 0.9	25.0	U 0.17	U 0.33	9.1	I 2.90	U 2.6	U 0.25	U 4.6	U 0.09	I 3.0	U 8.5	U 1.0	538	U 0.11	32.3	U 11.0
S17(30)	U 0.50	I 0.6	94.1	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	U 0.25	U 4.6	U 0.09	U 2.1	U 8.5	U 1.0	3,180	U 0.11	I 5.8	U 11.0
S17(60)	U 0.50	1.2	94.0	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	2,660	U 4.6	U 0.09	U 2.1	U 8.5	U 1.0	9,680	U 0.11	U 1.0	U 11.0
S18R(15)	U 0.50	1.1	29.4	U 0.17	U 0.33	I 4.4	U 0.96	U 2.6	43.8	U 4.6	U 0.09	I 2.6	U 8.5	U 1.0	335	U 0.11	10.4	U 11.0
S18R(30)	U 0.50	U 0.5	92.5	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	48.9	U 4.6	U 0.09	U 2.1	U 8.5	U 1.0	2,270	U 0.11	I 4.3	U 11.0
S18R(60)	U 0.50	I 1.6	20.2	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	726	U 4.6	U 0.09	U 2.1	U 8.5	U 1.0	8,040	U 0.11	U 1.0	U 11.0
S19(15)	U 0.50	U 0.5	30.9	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	97	U 4.6	U 0.09	U 2.1	U 8.5	U 1.0	280	U 0.11	I 1.1	U 11.0
S19(30)	U 0.50	U 0.5	110.0	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	578	U 4.6	U 0.09	U 2.1	U 8.5	U 1.0	1,910	U 0.11	I 1.0	U 11.0
S19(60)	U 0.50	U 0.5	118.0	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	1,170	I 6.0	U 0.09	U 2.1	U 8.5	U 1.0	5,300	U 0.11	U 1.0	U 11.0
S20(15)	U 0.50	I 0.6	14.2	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	U 0.25	U 4.6	U 0.09	U 2.1	U 8.5	U 1.0	74.3	U 0.11	I 1.6	U 11.0
S20(30)	U 0.50	1.0	106.0	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	1,020	U 4.6	U 0.09	U 2.1	U 8.5	U 1.0	1,760	U 0.11	I 1.0	U 11.0
S20(60)	U 0.50	3.1	118.0	U 0.17	U 0.33	U 1.7	U 0.96	I 3.4	4,230	U 4.6	U 0.09	U 2.1	U 8.5	I 1.0	2,420	U 0.11	I 1.8	U 11.0
S21(15)	2.70	1.8	11.6	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	U 0.25	U 4.6	U 0.09	U 2.1	U 8.5	U 1.0	33.6	U 0.11	I 5.0	U 11.0
S21(30)	U 0.50	I 0.7	96.4	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	551	U 4.6	U 0.09	U 2.1	U 8.5	U 1.0	1,310	U 0.11	I 1.2	U 11.0
S21(60)	U 0.50	1.0	147.0	U 0.17	U 0.33	U 1.7	U 0.96	U 2.6	1,430	U 4.6	U 0.09	U 2.1	U 8.5	U 1.0	2,500.0	U 0.11	U 1.0	U 11.0
MCLs	6.0 PDWS	10.0 PDWS	2,000 PDWS	4.0 PDWS	5.0 PDWS	100 PDWS		1,000 SDWS	300 SDWS	15.0 PDWS	2.0 PDWS	100 PDWS	50 PDWS	100 SDWS	160 PDWS	2.0 PDWS		5,000 SDWS

MIAMI-DADE SOLID WASTE MANAGEMENT DEPARTMENT

TECHNICAL SERVICES AND ENVIRONMENTAL AFFAIRS DIVISION

Table 3. Groundwater Monitoring - Volatile Organic Substances Detected

SITE: ***South Dade Landfill***

EVENT: ***2nd Semiannual Monitoring Event 2020***

Pace Analytical Laboratory

DETECTED PARAMETERS ONLY, *µg/L*								
Well	**EPA 8011 & 8260 Parameters**	**Chloroform**	**Bromodichloro-methane**	**Dibromochloro-methane**	**Chlorobenzene**	**1,4-Dichlorobenzene**	**Toluene**	**o-Xylene**
S1(10)	BDL							
S1(15)	BDL							
S1(60)	BDL							
S2(15)	BDL							
S2(30)	BDL							
S2(60)		28.3	2.0	2.0 I				
S3(15)	BDL							
S3(30)	BDL							
S3(60)	BDL							
S4(15)	BDL							
S4(30)					0.36 I			
S4(60)	BDL							
S5(15)	BDL							
S5(30)	BDL							
S5(60)	BDL							
S6(15)	BDL							
S6(30)	BDL							
S6(60)	BDL							
S7(15)	BDL							
S7(30)	BDL							
S7(60)	BDL							
S8(15)	BDL							
S8(30)	BDL							
S8(60)	BDL							
S9(15)	BDL							
S9(30)	BDL							
S9(60)	BDL							
S10(15)					I 0.63			
S10(30)					I 0.45			
S10(60)	BDL							
S11(15)	BDL							
S11(30)	BDL							
S11(60)	BDL							
S12(15)	BDL							
S12(30)	BDL							
S12(60)	BDL							
S13(15)	BDL							
S13(30)	BDL							
S13(60)	BDL							
S14(15)	BDL							
S14(30)	BDL							
S14(60)	BDL							
S15(15)	BDL							
S15(30)	BDL							
S15(60)	BDL							
S16(15)	BDL							
S16(30)							I 0.61	I 0.28
S16(60)	BDL							
S17(15)					1.4	I 0.56		
S17(30)	BDL							
S17(60)	BDL							
S18R(15)	BDL							
S18R(30)	BDL							
S18R(60)	BDL							
S19(15)	BDL							
S19(30)	BDL							
S19(60)	BDL							
S20(15)	BDL							
S20(30)	BDL							
S20(60)	BDL							
S21(15)	BDL							
S21(30)	BDL							
S21(60)	BDL							
MCLs *		70			100	600	1,000	10,000 (Total Xyl)

** FAC 62-550.310 Drinking Water Standards or 62-777 CTLs (µg/L). BDL = ALL VOC BELOW DETECTION LIMITS.*

OLD SOUTH
DADE LANDFILL

MIAMI-DADE COUNTY
miamidade.gov

Public Works and Waste Management
2525 NW 62nd Street • Suite 5100
Miami, Florida 33147
T 305-514-6666

111 NW 1st Street • Suite 1610
Miami, Florida 33128
T 305-375-2960

April 3, 2015

Via Federal Express

Amade Dimonnay, MBA
Compliance Assistance Program and Solid Waste Permitting
Florida Department of Environmental Protection
3301 Gun Club Road
MSC 7210-1
West Palm Beach, FL 33406

Re: Old South Dade Landfill Site Rehabilitation Completion Report

Dear Mr. Dimonnay:

Attached please find the Site Rehabilitation Completion Report for the Old South Dade Landfill (OSDL). The report respectfully requests that the FDEP consider our discontinuing groundwater treatment activities and groundwater monitoring at this site. This is based upon results from monitoring records of ammonia nitrogen levels in groundwater as well as upon new criteria regarding remediation activities in sites where ammonia nitrogen in groundwater is the only item of concern.

Please contact me if you have any questions or need additional information.

Sincerely,

German Hernandez, P.G.
Manager, Environmental Affairs
Technical Services and Environmental Compliance Division

Old South Dade Landfill
Site Rehabilitation Completion Report

Location and Site Description

The Old South Dade Landfill (OSDL) is located in southeastern Miami-Dade County, northeast of the City of Homestead, and is adjacent to Biscayne Bay and Biscayne National Park. The OSDL is in Section 28, Township 56S, Range 40E. It occupies approximately 300 acres with the following boundaries: south of SW 248th Street and Goulds Canal, north of theoretical SW 256th Street and the L31E canal, east of the boundary parallel to and approximately 750 feet west of theoretical SW 97th Avenue and west of theoretical SW 90th Avenue. East of the area is a mangrove marsh adjacent to Biscayne Bay. The L-31E canal bisects the site, and SW 97 Avenue bisects the enhanced capped landfill. An underground 24-inch gas transmission line runs parallel to the western right-of-way of Southwest 97th Avenue, south to the Turkey Point Power Plant.

There is on-going wetland vegetation monitoring and management plan to control exotic vegetation at the OSDL in perpetuity. Some native vegetation was planted to restore the wetland at the end of the garbage relocation phase of the Closure Enhancement construction project at the OSDL. Natural recruitment of native vegetation has occurred so supplemental planting has not been necessary..

History

Landfill operations began at the OSDL as early as 1952 and ceased in 1979. Parcels comprising the landfill areas were, in the majority, privately owned. By 1990, the County owned two tracts comprising 10 acres in the southwestern most corner of the facility and by the mid-1990s the County had purchased or was in the process of purchasing the remaining acreage from private hands. Early landfilling proceeded from east to west and continued from the eastern portion until desired elevations were met. Both garbage and trash were accepted, and disposed of in open trenches below the water table, or on the land surface. The solid waste ranged from 6 to 8 feet thick east of SW 97th Avenue, to about 15 feet thick to the west of SW 97th Avenue. The thickest area was believed to be the area of the most recent deposits. Historical total tonnage of garbage and trash disposed of at this site is approximately 900,000 tons. The landfill was closed in accordance with the regulations in effect at the time. After 1979, the site was essentially abandoned and allowed to become overgrown.

Closure Enhancement Activities

The Miami-Dade County Department of Public Works and Waste Management (PWWM) completed the Closure Enhancement construction activities at the OSDL by February 15, 2001. The Closure Enhancement of the OSDL consisted of three major elements for the short-term, medium-term and long-term rehabilitation of this site, including wetland restoration, clearing, and grading the site; relocating waste and the placement of a lime rock cap over the relocated landfill material, and construction of stormwater management, groundwater extraction, treatment, injection, and monitoring systems.

The first activity addressed the short-term goal of solid waste relocation from the eastern parcels of the landfill, the extraction of leachate from those areas and the restoration of wetlands. Solid waste was excavated and relocated in two solid waste cells west of the borrow canal. Leachate from the excavation was pumped out and transported to the County's South District Wastewater Treatment Plant for treatment and disposal. Wetlands species were planted in the areas that had waste excavated from them. The wetlands in the area that had not been disturbed and the wetland plantings underwent exotic plant monitoring, removal and treatment as needed. This management plan is to be conducted in perpetuity to maintain a vigorous wetland area.

Secondly, the medium-term remedial work consisted of an active groundwater extraction and treatment system designed to remove ammonia from groundwater in the area of the western cells. This consisted of five extraction wells that extracted ammonia-contaminated groundwater from underneath the closed landfill cells. The extracted groundwater was piped to a sequencing batch reactor (SBR) plant, where it would be treated to comply with the local regulatory agency's (the Miami Dade County Department of Regulatory and Economic Resources Division of Environmental Resources Management – RER/DERM) groundwater standard for ammonia of 0.5 mg/l for the purpose of reinjection into the aquifer via five gravity wells on the east side of the closed landfill cells.

The SBR system startup was in March 2002, but was taken off-line for major warranty repairs from mid-May 2003 to the beginning of January 2004 due to a failure in its concrete base. The SBR was re-tested during November and December 2003. The plant was put back into routine service in January 2004. From October 4, 2003 to July 31, 2013 the SBR treated approximately 2,887,419,494 gallons of groundwater from underneath the OSD Landfill. From January 2004 through July 2013, 135,275 pounds (over 67 tons) of ammonia were removed from the groundwater at the OSDL.

The SBR was taken out-of–service for tank and system inspection on July 13, 2014. Perforations have been noted in the tank walls. Miscellaneous ancillary items that need refurbishing, repair or replacement have been identified.

Thirdly, the long-term remediation strategy consisted of closure enhancement work with construction of an improved cover over the waste, grading of waste deposits designed

to provide positive drainage, installation of access controls to prevent unauthorized entry and illegal dumping and construction of a new storm water management system. This comprehensive design and enhancement allows the waste deposits to dry out and minimizes the generation of leachate. This engineered system is the long-term strategy for the site's rehabilitation.

Discussion

The only contaminant of concern at this site is ammonia-nitrogen in groundwater. At this time, the analytical results of ammonia nitrogen in groundwater in monitoring well clusters in the perimeter of the facility (OS3, OS4 and OS5) show a continuous decreasing trend or plateau in their downward trend in concentration. Levels are below the cleanup target level (CTL) of 2.8 mg/l, which was considered the rehabilitation completion goal for a number of years, although it is not a state water quality standard as defined under s. 403.803(13), Florida Statutes. Nevertheless, this was described as the goal of the Remedial Action Plan (RAP) prepared for this facility in July of 1998 by Brown & Caldwell, and implemented as described earlier. Surface water bodies in the vicinity have not shown to be and are not expected to be impacted by the groundwater from this facility. See Tables 1 through 5.

The groundwater CTL of 2.8 mg/l was calculated on the basis of a published Minimal Risk Level (MRL) for an ammonia oral reference dose by the Agency for Toxic Substances and Disease Registry. This agency has removed ammonia from its MRL publication, and since there is no longer a toxicological support for the CTL. See Attachment A.

Conclusion

The decrease in ammonia levels throughout the facility, are the result of the implementation of the short-term, medium-term and long-term environmental improvements and remediation activities at the OSDL throughout the years and are believed to have effectively rehabilitated this facility in a manner that it is protective of the environment in accordance with the original goals set in the RAP. Along with the development of new criteria for facilities undergoing remediation activities for ammonia in groundwater cleanup requirements, we believe that the medium-term remediation - the SBR treatment system - has achieved its objective.

We respectfully request that all groundwater pumping, treatment, reinjection and monitoring activities at the OSDL cease at this time. Monitoring and management of the wetland areas, maintenance of the extant final cover and stormwater control structures and site security will be continued and carried out at this facility.

Florida Department of Environmental Protection

SOUTHEAST DISTRICT OFFICE
3301 GUN CLUB ROAD, MSC 7210-1
WEST PALM BEACH, FL 33406
561-681-6600

Rick Scott
Governor

Carlos Lopez-Cantera
Lt. Governor

Jonathan P. Steverson
Interim Secretary

July 1, 2015

Miami-Dade County
Department of Solid Waste Management
c/o German Hernandez
2525 NW 62nd Street, Suite 5100
Miami, FL 33128

Re: File Name: Old South Dade Landfill Closure Enhancement,
File No.: 13-0138315-007
Modification of File No.: 13-0138315-001

Dear Mr. Hernandez:

Your request to modify this permit has been received and reviewed by Department staff. The modifications includes revisions to specific conditions as listed below.

PROJECT LOCATION
The western boundary of the project site is located approximately 700 feet west of SW 97 Avenue, between SW 248 Street and theoretical SW 256 Street, in Miami, Miami-Dade County, Florida (S28&29, T56S, R40E). The L-31E Canal runs north-south through the project site separating landfill Waste Areas I and II to the east from Areas III and IV to the west. Area I is located just landward of Biscayne Bay Aquatic Preserve (Outstanding Florida Waters), adjacent to Biscayne National Park along the southeast coast of Miami-Dade County. The site lies approximately 12 miles northeast of the city of Homestead and just south of the active South Dade County Solid Waste Disposal Facility.

The above modifications are not expected to adversely affect water quality and will not be contrary to or will be clearly in the public interest provided the following **SPECIFIC CONDITIONS** are amended and added to the permit as issued. Please note that additions are underlined and deletions are stricken:

PROJECT DESCRIPTION
The project involves dredging and filling of wetlands and the construction of a surface water management system to enhance the closure condition of an old dump (known as the Old South Dade landfill closure enhancement) in conjunction with construction of a groundwater treatment system that will be implemented in accordance with a Remedial Action Plan.

SPECIFIC CONDITIONS

~~**Specific Condition 11**:~~

~~**Remedial Action Plan (RAP).** A RAP shall be submitted as proposed in the Enhanced Closure Plan to address groundwater contamination. The RAP shall be prepared in accordance with the Department's guidance document titled "Corrective Actions for Contamination Site Cases". A RAP dated July 1998, and subsequent addendums have been submitted for the site; however, additional work in the form of a pilot test program for the drainage wells must be completed prior to consideration of approval of the RAP. Implementation of the RAP shall not commence until the RAP has been approved by the Department. Once the RAP is approved, implementation of the RAP shall follow the time schedule submitted with the RAP.~~

~~A pilot test program for the drainage wells shall be completed prior to installation or use of the drainage well system for disposal of stormwater or treated groundwater. The pilot test will be implemented as soon as practical, subsequent to issuance of this ERP, so that the pilot test well can be located in its proposed final location, which is within the current wetland jurisdictional boundary. The pilot test shall be used to determine the capacity of the proposed drainage wells and to determine the number of wells required. Based on the results of the pilot test, a sufficient number of drainage wells shall be constructed to dispose of stormwater from the on-site dry retention pond during a 100 year, three day storm event after treatment of 1½ inches of runoff and continuous disposal of treated groundwater. Groundwater modeling will be conducted as part of the pilot test to simulate expected conditions. The modeling will be used as the basis for determining the appropriate number of wells.~~

~~Quarterly RAP status reports shall be submitted to the Department's Southeast District Office, Waste Cleanup Section, in West Palm Beach after implementation and startup of the RAP. The reports will include the following items:~~

- ~~Groundwater contour map depicting the extraction system capture zone~~
- ~~Calculated volume of ammonia removed~~
- ~~Volume of groundwater extracted~~
- ~~Influent and effluent concentration data from site monitoring wells~~
- ~~Groundwater quality data and rainfall data~~
- ~~Treatment system shut down dates, duration, and actions taken to prevent contaminant breakthrough~~

Specific Condition 14; **Class V Disposal Wells.** The construction and operation of the proposed disposal wells shall be implemented in accordance with a Department approved RAP, attached plans (exhibits 19 through 23), and as follows:

a) The wells shall be constructed by Florida licensed driller.
b) The certified well driller shall develop the wells and submit a Certification of Class V Well Construction Completion, DEP Form 62-528.900(4) and a Well Completion

Report, DER Form 17-1.213(2) for each well completed. These forms shall be submitted to the Department within fifteen (15) days after completion of each well.

c) During the period of construction whenever there is an interruption in work on a well, such as overnight shutdown, the well shall be sealed with a tamper resistant cover.

d) The construction of each well shall be such that the casing penetrates a zone containing a minimum of 10,000 mg/l Total Dissolved Solids.

e) After construction of each well, a bar screen seal having a mesh no larger than 1.5 inches will be securely attached to the top of the well, to prevent the introduction of foreign materials.

f) Within fifteen (15) days after each well has been constructed and tested, a one time analysis of the ground water performed by a Florida certified laboratory shall be submitted to the Department. The analysis shall consist of a test for Total Dissolved Solids.

g) In accordance with Rule 62-532.500(3)(a)4. Any well temporarily out of service shall be capped in a watertight manner with a welded cover.

h) A well casing, when installed in a predrilled hole, must be grouted from the bottom of the well casing to the land surface. The depth of grouting and the number of sacks of cement used must be shown on the Well Completion Report.

i) Each Class V, Group 6 well is authorized to be used for disposal of stormwater ~~and treated groundwater only~~. Allowing fluids other than those permitted into the disposal wells will be considered a violation of this permit and shall constitute cause for permit revocation and possible enforcement action for water quality violations.

i) The permittee or designated operator of the Class V drainage system shall at all times properly maintain the system, methods of treatment and control in such a manner that efficient operation of the system is maintained at all times.

j) The permittee or designated operator shall make an inspection on a regular basis to ensure free flow capability through basins, drains and wells. All debris, e.g. leaves, sand, branches and oil, found should be removed and disposed of in a proper manner. The Department must be notified of any repair that requires the replacement or alteration of any part of the system.

k) If for any reason, the owner or operator does not comply, or will be unable to comply, with any condition or limitation specified in this authorization, he or she shall notify the Department.

l) When requested by the Department, the owner shall within a reasonable time furnish any information required by law which is needed to determine compliance with this authorization.

m) In accordance with F.A.C. Rule 62-528.645(1), the owner of the Class V well shall apply for a Plugging and Abandonment Permit, DEP Form 62-528.900(6), when the well is no longer usable for its intended purpose. The application shall include the justification for abandonment and the proposed plugging plan.

~~o) Prior to injection of treated groundwater (leachate) a determination of the background water quality from the injection zone shall be established for the primary and secondary drinking water standards (62-550, FAC) and minimum criteria parameters (62-520 FAC), using water quality samples from each injection well.~~

p) Prior to any injection of treated groundwater, for each injection monitoring well, determine the background water quality from the monitoring zone(s) for primary and secondary drinking water standards (62-550, FAC) and minimum criteria parameters (62-520 FAC).

q) The following data, unless more parameters are warranted by the sampling results, effluent water quality sample (treated groundwater) shall be collected and reported to the Department in Monthly Reports (MRs), no later than the 28th day of the month immediately following the end of the sampling period. The results shall be sent to the Department of Environmental Protection, Underground Injection Control, Southeast District Office, PO Box 13542, West Palm Beach, Florida, 33416.

- Total Dissolved Solids (mg/l)
- Chlorides (mg/l)
- Conductivity (umhos)
- Ammonia (mg/l)
- Nitrate/nitrite (mg/l)

r) A report presenting a summary or trend analysis of any water quality standards or criteria that are exceeded, including elevations of parameters above background levels, shall be included with the analytical results.

A minimum of three (3) well volumes of fluid shall be evacuated from each monitor well prior to sampling for the chemical parameters listed above.

s) All data submissions, including MR's, shall be clearly identified on each page with Facility Name, ID number, date of sampling/recording, operator's name, and telephone number, and type of data shown. The lead plant operator or higher official must sign and date each submittal.

Specific Condition 15: **Water Quality Monitoring Network Construction/Operation and Maintenance.** The water quality monitoring plan for this site is approved pursuant to Chapters 62-520, 62-522, 62-302, and 62-701, Florida Administrative Code (F.A.C.). The locations of the existing and proposed monitoring wells and surface water sampling locations are shown on Exhibit 24 (Figure 9-1).

Ground Water Sample Locations

15a. All new monitoring wells shall be constructed in accordance with Chapter 62-532, F.A.C. All new monitoring wells shall be installed by a Florida certified water well contractor. Well completion reports shall be submitted to the Department within thirty (30) days, upon completion of installation. Well development water discharges shall be followed pursuant to the Department's Standard Operating Procedures for Laboratory Operations and Sample Collection Activities, DEP QA-001/92.

15b. The location of each monitor well in degrees, minutes and seconds of latitude and longitude, the Universal Transverse Mercator coordinates [UTM], and the elevation of the top of the well casing to the nearest 0.01 foot, NGVD, shall be determined

~~by a registered Florida land surveyor within fourteen (14) days of the certified completion of all new wells proposed for this permit, and within sixty (60) days of permit issuance for any existing wells. A drawing illustrating this information, signed and sealed by a certified Florida land surveyor, shall be submitted to the Department within forty five (45) days of each survey.~~

~~15c. All monitor wells shall be clearly identified and maintained in good condition to prevent or minimize sampling interferences, loss of well integrity or vandalism. All monitoring wells shall have well maintained concrete pads and be properly sealed and locked. Monitor wells finished above grade shall be protected by bumper guards and steel risers. Monitor wells finished at or below grade shall have traffic-bearing steel plate cover assemblies.~~

~~15d. The permittee shall maintain reasonable access to all of the monitoring well stations required by this permit. The permittee is responsible for maintaining the integrity of the monitoring well stations and protecting them from destruction or vandalism. Should any of these monitoring well stations be damaged or vandalized in any manner, or destroyed, the permittee shall notify the Department immediately upon discovery. The notification shall include pertinent information as to the cause, and what steps are being taken to replace the monitoring well station and prevent the recurrence of such problems in the future.~~

~~15e. In the event of an emergency and/or discharge to groundwater, the Department shall be notified in person or by telephone within 24 hours of the incident. The 24 hour emergency telephone number for the State's Warning Point, as designated in Chapter 62-150, F.A.C., is 850-413-9911. A written preliminary report describing the incident shall also be submitted to the Department within seventy two (72) hours of the start of the incident. In addition, a final written report shall be sent to the Department within two (2) weeks of the incident. The final report shall contain a complete description of and discuss the cause of the emergency and/or discharge, the anticipated time that the discharge, if any, will continue, the steps that will be taken to evaluate, reduce, eliminate, and prevent recurrence of the event, and all other information deemed necessary by the Department.~~

~~Groundwater Testing and Reporting Requirements.~~

~~15f. Monitoring wells (Em-1, EM-2, EM-3, and EM-4) shall be sampled initially within forty-five (45) days of final certified well completion and development and thereafter semi-annually for those parameters listed in Exhibit 27 of this permit. Existing monitoring wells in clusters OS-2, OS-3, OS-4, and OS-5 and proposed wells in cluster DM-1, DM-2, and DM-3 shall be sampled monthly for ammonia and chloride until the relocation of waste is completed in Areas I and II. After the relocation of the waste in Areas I and II is complete existing monitoring wells in clusters OS-2, OS-3, OS-4, and OS-5 shall be sampled semi-annually for ammonia and chloride unless a more frequent sampling interval is warranted by the sample~~

~~results. Well development prior to sampling events and purge/sampling water discharges shall be followed pursuant to the Department's Standard Operating Procedures for Laboratory Operations and Sample Collection Activities, DEP QA-001/92.~~

~~15g. Groundwater level measurements and elevations for all of the monitoring wells listed in this specific condition shall be recorded and reported in feet NGVD to the nearest 0.01 feet for each reporting period. The analytical results and information outlined in this condition shall be submitted to the Department semi-annually and shall be submitted on DEP Form 62-522.900(2), Exhibit 30. This information may be submitted concurrently with the RAP status report described in special condition 11 above.~~

~~15h. The Department's Southeast District office, Waste Cleanup Section, shall be notified in writing at least fourteen (14) days prior to any well installation or regular sampling event so that the Department, if desired, may observe the drilling, sampling, or collect split samples.~~

~~15i. All groundwater quality parameters and analytical results, sampling and analytical methods, method detection limits, applicable water quality standards, storet codes, TOC elevation, land surface elevations, water level measurements, groundwater elevations, monitoring well identification number, monitoring well name, monitoring well type (background or compliance), sample collection date, sample analysis date, facility name and facility identification number shall be recorded and submitted certified by the permittee to the Department within the time frames required in this condition. A report presenting a summary or trend analysis of any water quality standards or criteria that are exceeded, including elevations of parameters above background levels, shall be included with the analytical results.~~

~~15j. All semi-annual water quality analyses reports shall be submitted with a summary of information, including any anomalous data or events that may affect the data, exceedances of any Department standards or criteria, confirmation sampling events, applicable charts or graphs or any information related to the water quality monitoring well network to the Department at the following address:~~

~~Florida Department of Environmental Protection~~
~~Southeast District Waste Cleanup Section~~
~~P.O. Box 15425~~
~~West Palm Beach, FL 33416-5425~~

~~These reports may be submitted concurrently with the RAP status report described in special condition 11 above.~~

~~Compliance Monitoring Requirements~~

~~15k. Pursuant to Rule 62-701.510(7), F.A.C., if indicator parameters are detected at concentrations significantly above those water quality levels established as background for the site, or which are at levels above the Department's water quality standards or criteria specified in Rule 62-520, F.A.C. in any detection or compliance well, the affected well may be resampled for confirmation purposes within fourteen (14) days after the permittee's receipt of the data. The Department's Waste Cleanup section must be notified seven (7) days prior to any confirmatory resampling event at this site. Should the permittee choose not to resample, the Department will consider the water quality analysis as representative of current ground water conditions at the facility. If the data is confirmed, or the permittee chooses not to resample, the permittee shall notify the Department in writing with fourteen (14) days of this finding. The Department may require additional monitoring wells or samples to be taken if analyses indicate that ground water contamination must be more specifically defined in extent or concentration.~~

Zone of Discharge

15l. The zone of discharge for this site shall be in accordance with the requirements of Rule 62-522.410, F.A.C. and horizontally extend to the property boundary and extend vertically to the first confining layer.

~~**Surface Water Monitoring Requirements**~~

~~15m. Six surface water sampling locations (one from the Goulds canal north of the site, one from the L-31E canal in the vicinity of monitoring well cluster EM-4, one from the surface water body in the vicinity of well cluster OS-5, one each adjacent to monitoring wells DM-1, DM-2 and DM-3) shall be sampled monthly for the field parameters of pH, temperature, and salinity and laboratory analyses for total ammonia (from which the un-ionized ammonia concentration shall be calculated) and shall be reported to the Department monthly. When the waste relocation activities have been completed (Phase II), and all of the proposed monitoring wells required by Special Condition 15 have been installed, the surface water sampling may be discontinued.~~

~~15n. If any surface water analytical results exceed the Department's water quality standards or criteria in Rule 62-302, F.A.C., a confirmatory sample shall be taken within fourteen (14) days of the permittee's receipt of the data. The Department's Southeast District Waste Cleanup section shall be notified seven (7) days prior to any surface water resampling event. Should the permittee choose not to resample, the Department will consider the water quality analysis as representative of current surface water conditions at the facility. If the data is confirmed, or the permittee chooses not to resample, the permittee shall notify the Department in writing within fourteen (14) days of this finding.~~

~~**Quality Assurance and Quality Control Requirements**~~

~~15o. All sampling and analysis activities shall be performed by organizations that have Comprehensive Quality Assurance Plans approved in accordance with Rule 62-160.300(8), F.A.C. All sampling, analysis, recording and reporting activities for groundwater, surface water and leachate shall be in accordance with the Department's quality assurance and quality control requirements described in Chapter 62-160, F.A.C.~~

Since the proposed modifications are not expected to result in any adverse environmental impact or water quality degradation, the permit is hereby modified as requested. By copy of this letter, we are notifying all necessary parties of the modifications.

This letter of approval does not alter the original expiration date and does not change the original General or Specific Conditions (except as modified herein), or monitoring requirements of the permit (except as modified herein). This letter must be attached to the original permit.

NOTICE OF RIGHTS

This action is final and effective on the date filed with the Clerk of the Department unless a petition for an administrative hearing is timely filed under Sections 120.569 and 120.57, F.S., before the deadline for filing a petition. On the filing of a timely and sufficient petition, this action will not be final and effective until further order of the Department. Because the administrative hearing process is designed to formulate final agency action, the hearing process may result in a modification of the agency action or even denial of the application.

Petition for Administrative Hearing

A person whose substantial interests are affected by the Department's action may petition for an administrative proceeding (hearing) under Sections 120.569 and 120.57, F.S. Pursuant to Rule 28-106.201, F.A.C., a petition for an administrative hearing must contain the following information:

(a) The name and address of each agency affected and each agency's file or identification number, if known;

(b) The name, address, any email address, any facsimile number, and telephone number of the petitioner; the name, address, and telephone number of the petitioner's representative, if any, which shall be the address for service purposes during the course of the proceeding; and an explanation of how the petitioner's substantial interests are or will be affected by the agency determination;

(c) A statement of when and how the petitioner received notice of the agency decision;

(d) A statement of all disputed issues of material fact. If there are none, the petition must so indicate;

(e) A concise statement of the ultimate facts alleged, including the specific facts that the petitioner contends warrant reversal or modification of the agency's proposed action;

(f) A statement of the specific rules or statutes that the petitioner contends require reversal or modification of the agency's proposed action, including an explanation of how the alleged facts relate to the specific rules or statutes; and

(g) A statement of the relief sought by the petitioner, stating precisely the action that the petitioner wishes the agency to take with respect to the agency's proposed action.

The petition must be filed (received by the Clerk) in the Office of General Counsel of the Department at 3900 Commonwealth Boulevard, Mail Station 35, Tallahassee, Florida 32399-3000. Also, a copy of the petition shall be mailed to the applicant at the address indicated above at the time of filing.

Time Period for Filing a Petition

In accordance with Rule 62-110.106(3), F.A.C., petitions for an administrative hearing by the applicant must be filed within 21 days of receipt of this written notice. Petitions filed by any persons other than the applicant, and other than those entitled to written notice under Section 120.60(3), F.S., must be filed within 21 days of publication of the notice or within 21 days of receipt of the written notice, whichever occurs first. Under Section 120.60(3), F.S., however, any person who has asked the Department for notice of agency action may file a petition within 21 days of receipt of such notice, regardless of the date of publication. The failure to file a petition within the appropriate time period shall constitute a waiver of that person's right to request an administrative determination (hearing) under Sections 120.569 and 120.57, F.S., or to intervene in this proceeding and participate as a party to it. Any subsequent intervention (in a proceeding initiated by another party) will be only at the discretion of the presiding officer upon the filing of a motion in compliance with Rule 28-106.205, F.A.C.

Extension of Time

Under Rule 62-110.106(4), F.A.C., a person whose substantial interests are affected by the Department's action may also request an extension of time to file a petition for an administrative hearing. The Department may, for good cause shown, grant the request for an extension of time. Requests for extension of time must be filed with the Office of General Counsel of the Department at 3900 Commonwealth Boulevard, Mail Station 35, Tallahassee, Florida 32399-3000, before the applicable deadline for filing a petition for an administrative hearing. A timely request for extension of time shall toll the running of the time period for filing a petition until the request is acted upon.

Mediation

Mediation is not available in this proceeding.

FLAWAC Review

The applicant, or any party within the meaning of Section 373.114(1)(a) or 373.4275, F.S., may also seek appellate review of this order before the Land and Water Adjudicatory Commission under Section 373.114(1) or 373.4275, F.S. Requests for review before the Land and Water Adjudicatory Commission must be filed with the Secretary of the Commission and served on the Department within 20 days from the date when this order is filed with the Clerk of the Department.

Judicial Review

Once this decision becomes final, any party to this action has the right to seek judicial review pursuant to Section 120.68, F.S., by filing a Notice of Appeal pursuant to Rules 9.110 and 9.190, Florida Rules of Appellate Procedure, with the Clerk of the Department in the Office of General Counsel, 3900 Commonwealth Boulevard, M.S. 35, Tallahassee, Florida 32399-3000; and by filing a copy of the Notice of Appeal accompanied by the applicable filing fees with the appropriate District Court of Appeal. The Notice of Appeal must be filed within 30 days from the date this action is filed with the Clerk of the Department.

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL PROTECTION

7/1/15
Jason Andreotta Date
Permitting Program Administrator
Southeast District

Copies furnished to:
Irene Arpayoglou, FDEP/SED/ERP/Permitting, Irene.Arpayoglou@dep.state.fl.us
Don Keirn, FDEP Compliance and Assistance; Don.Keirn@dep.state.fl.us
Rosalinda Rodriguez, USACOE- Miami-Dade, Rosalinda.Rodriguez@usace.army.mil
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Amede Dimonnay, DEP Southeast District, amede.dimonnay@dep.state.fl.us
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German Hernandez, germanh@miamidade.gov

CERTIFICATE OF SERVICE

The undersigned duly designated deputy clerk hereby certifies that this determination, including all copies, was mailed before the close of business on 7/1/15, to the above listed persons.

FILING AND ACKNOWLEDGMENT

FILED, on this date, pursuant to 120.52(9), Florida Statutes, with the designated Department Clerk, receipt of which is hereby acknowledged.

Rachel Osborne 7/1/15
Clerk Date

OCULUS: ERP/Permitting Auth./ERP_138315/Permit Final/ERP Modifications-EM/007

MIAMI-DADE COUNTY

DEPARTMENT OF PUBLIC WORKS AND WASTE MANAGEMENT

Technical Services and Environmental Affairs Division

OLD SOUTH DADE LANDFILL

First Semiannual Monitoring Report

2014

May 2014


N
SW 97 AVE.
SW 248 ST.
SOUTH DADE LANDFILL
OSDL SBR
OLD SOUTH DADE LANDFILL
S10 60FT
S10 30FT
S10 15FT
S16 60FT
S16 30FT
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OS5 15FT
OS5 30FT
OS5 60FT
OS3 15FT
OS3 30FT
OS3 60FT

FIGURE 8

Table 1. GROUNDWATER MONITORING
FIELD PARAMETERS
LABORATORY: PACE
SAMPLED BY: PACE

Old South Dade Landfill
First Semiannual Sampling 2014

Well	Sampling Date	PVC Elev. (Ft)	Level Reading	Water Level	D. O. *mg/l*	pH *S.U.*	S. Cond. *umhos/cm*	Temp. *Deg. C*
HISTORIC WELLS								
OS1(15)	24-Feb-14	3.25	1.35	1.90	0.83	6.89	1,050	26.51
OS1(30)	24-Feb-14	3.17	1.36	1.81	0.81	6.95	3,569	26.81
OS1(60)	24-Feb-14	3.34	1.30	2.04	0.79	7.36	29,566	26.3
OS2(15)	24-Feb-14	6.80	3.03	3.77	0.68	7.23	1,511	26.21
OS2(30)	24-Feb-14	6.96	3.10	3.86	0.85	7.06	4,317	26.9
OS2(60)	24-Feb-14	6.89	3.11	3.78	0.75	7.31	44,582	26.23
OS3(15)	4-Mar-14	4.95	3.03	1.92	0.7	7.36	893	27.49
OS3(30)	4-Mar-14	4.43	2.79	1.64	0.8	7.05	2,459	26.55
OS3(60)	4-Mar-14	4.22	2.51	1.71	0.81	7.21	17,545	26.41
OS4(15)	5-Mar-15	6.08	4.32	1.76	0.81	7.05	1,067	26.85
OS4(30)	5-Mar-15	6.09	4.10	1.99	0.81	7.32	2,675	27.06
OS4(60)	5-Mar-15	6.13	4.17	1.96	0.74	7.04	20,360	26.75
OS5(15)	4-Mar-14	6.21	5.19	1.02	0.7	6.89	992	26.41
OS5(30)	4-Mar-14	5.88	5.07	0.81	0.84	7.15	3,119	26.9
OS5(60)	4-Mar-14	6.13	5.12	3.00	0.74	7.09	20,047	26.19
DOWNGRADIENT MONITORING WELLS								
DM1(15)	12-Mar-14	8.46	6.12	2.34	0.68	7.59	1,415	25.37
DM1(30)	12-Mar-14	8.40	6.52	1.88	0.81	7.59	2,620	25.15
DM1(60)	12-Mar-14	8.59	6.49	2.10	0.71	7.19	45,133	24.93
DM2(15)	5-Mar-14	8.67	7.76	0.91	0.71	7.20	685	26.43
DM2(30)	5-Mar-14	7.84	5.50	2.34	0.74	7.26	3,166	26.92
DM2(60)	5-Mar-14	7.59	5.22	2.37	0.73	7.09	25,342	26.93
DM3(15)	12-Mar-14	8.27	6.85	1.42	0.74	7.21	1,814	25.06
DM3(30)	12-Mar-14	8.38	7.02	1.36	0.8	7.39	9,274	25.58
DM3(60)	12-Mar-14	7.60	7.33	0.27	0.87	7.19	45,270	25.62
EXTRACTION MONITORING WELLS								
EM1	25-Feb-14	11.83	9.13	2.70	0.7	7.04	880	27.05
EM2	25-Feb-14	11.37	9.33	2.04	0.77	7.05	788	26.41
EM3	25-Feb-14	11.63	8.69	2.94	0.71	7.27	820	26.05
EM4	25-Feb-14	18.00	17.28	0.72	0.73	7.15	2,647	26.8
INJECTION MONITORING WELLS								
IM1N	25-Feb-14	7.60	2.95	4.65	0.85	6.87	22,481	26.37
IM1S	25-Feb-14	7.14	3.06	4.08	0.72	6.96	27,231	27.01
IM2N	25-Feb-14	11.27	9.30	1.97	0.67	7.20	20,649	27.09
IM2S	25-Feb-14	11.31	9.27	2.04	0.81	7.16	14,947	27.16
IM3N	25-Feb-14	11.32	9.25	2.07	0.79	6.95	18,672	26.39
IM3S	25-Feb-14	11.70	9.47	2.23	0.8	7.37	11,540	26.66
IM4N	25-Feb-14	12.11	10.02	2.09	0.8	7.15	5,600	26.95
IM4S	25-Feb-14	11.26	9.10	2.16	0.8	7.39	9,404	26.21
IM5N	25-Feb-14	7.88	3.18	4.70	0.76	6.99	9,258	26.07
IM5S	25-Feb-14	8.10	3.12	4.98	0.62	7.04	7,758	26.33
EFFLUENT TANK								
SBR EFF	NR	NR	NR	NR	NR	NR	NR	NR
MCL's						**6.5-8.5 S.U. SDWS**		

NR= No Report
PDWS= Primary Drinking Water Standard
SDWS= Secondary Drinking Water Standard
GCTL= Groundwater Clean-Up Target Level

Table 2. GROUNDWATER MONITORING
GENERAL CHEMISTRY
LABORATORY: PACE
SAMPLED BY: PACE

Old South Dade Landfill
First Semiannual Sampling 2014

Well	Sampling Date	Chloride *mg/l*	NO3-N mg/l	NH3-N *mg/l*	TDS *mg/l*
HISTORIC WELLS					
OS1(15)	24-Feb-14	99	< 0.043	0.82	453
OS1(30)	24-Feb-14	1,850	< 0.86	0.28	4,080
OS1(60)	24-Feb-14	39	< 0.43	0.21	183
OS2(15)	24-Feb-14	99	< 0.43	0.51	336
OS2(30)	24-Feb-14	35	< 0.43	< 0.02	195
OS2(60)	24-Feb-14	39	< 0.43	0.24	173
OS3(15)	4-Mar-14	2,610	< 0.86	0.82	5,320
OS3(30)	4-Mar-14	3,480	< 0.86	0.81	6,860
OS3(60)	4-Mar-14	3,350	< 0.86	0.83	7,680
OS4(15)	5-Mar-15	3,900	< 0.86	2.4	8,000
OS4(30)	5-Mar-15	1,790	< 0.86	17.6	3,570
OS4(60)	5-Mar-15	2,030	< 0.86	13.4	4,380
OS5(15)	4-Mar-14	2,390	< 0.86	0.79	4,640
OS5(30)	4-Mar-14	330	< 0.86	0.85	6,900
OS5(60)	4-Mar-14	3,470	< 0.86	0.84	7,460
DOWNGRADIENT MONITORING WELLS					
DM1(15)	12-Mar-14	315	< 0.22	0.82	980
DM1(30)	12-Mar-14	660	< 0.22	0.34	1,520
DM1(60)	12-Mar-14	15,100	< 0.86	0.39	34,000
DM2(15)	5-Mar-14	3,590	< 0.86	0.71	7,300
DM2(30)	5-Mar-14	1,830	< 0.86	17.9	3,580
DM2(60)	5-Mar-14	1,990	< 0.86	13.5	4,490
DM3(15)	12-Mar-14	303	< 0.22	< 0.040	1,280
DM3(30)	12-Mar-14	2,770	< 0.86	7.300	5,520
DM3(60)	12-Mar-14	15,200	< 0.86	0.670	38,000
EXTRACTION MONITORING WELLS					
EM1	25-Feb-14	5,560	< 0.86	2.30	12,800
EM2	25-Feb-14	1,740	< 0.86	0.06	3,850
EM3	25-Feb-14	1,830	< 0.86	0.067	4,030
EM4	25-Feb-14	51	0.076	< 0.04	307
INJECTION MONITORING WELLS					
IM1N	25-Feb-14	3,810	< 0.86	0.65	9,100
IM1S	25-Feb-14	5,560	< 0.86	2.40	12,900
IM2N	25-Feb-14	4,530	< 0.86	2.70	11,200
IM2S	25-Feb-14	839	< 0.86	< 0.04	2,290
IM3N	25-Feb-14	4,150	< 0.86	1.10	10,800
IM3S	25-Feb-14	812	0.96	< 0.10	2,150
IM4N	25-Feb-14	1,750	< 0.86	0.08	3,800
IM4S	25-Feb-14	2,960	< 0.86	1.10	7,140
IM5N	25-Feb-14	5,740	< 0.86	2.40	14,200
IM5S	25-Feb-14	4,130	< 0.86	2.00	10,200
EFFLUENT TANK					
SBR EFF	NR	NR	NR	NR	NR
MCL's		**250 mg/l GCTL/SDWS**	**10 mg/l GCTL/PDWS**		**500 mg/l GCTL/SDWS**

NR= No Report
PDWS= Primary Drinking Water Standard
SDWS= Secondary Drinking Water Standard
GCTL= Groundwater Clean-Up Target Level

Table 3. GROUNDWATER MONITORING
METALS
LABORATORY: Pace
SAMPLED BY: Pace

Old South Dade Landfill
First Semiannual Sampling 2014

Well	Sampling Date	Sb ug/l	As ug/l	Ba ug/l	Be ug/l	Cd ug/l	Cr ug/l	Co ug/l	Cu ug/l
HISTORIC WELLS									
OS1(15)	24-Feb-14	< 5.0	5.6	14.6	< 0.5	< 0.5	5.1	< 5.0	54.4
OS1(30)	24-Feb-14	< 5.0	< 5.0	64.3	< 0.5	< 0.5	3.5	< 5.0	14.7
OS1(60)	24-Feb-14	< 5.0	< 5.0	< 5.0	< 0.5	< 0.5	< 2.5	< 5.0	< 2.5
OS2(15)	24-Feb-14	< 5.0	5.4	10.1	< 0.5	< 0.5	3.8	< 5.0	51.1
OS2(30)	24-Feb-14	< 5.0	< 5.0	< 5.0	< 0.5	< 0.5	< 2.5	< 5.0	< 2.5
OS2(60)	24-Feb-14	< 5.0	< 5.0	< 5.0	< 0.5	< 0.5	< 2.5	< 5.0	< 2.5
OS3(15)	4-Mar-14	< 5.0	< 5.0	48.0	< 0.5	< 0.5	< 2.5	< 5.0	< 2.5
OS3(30)	4-Mar-14	< 5.0	< 5.0	58.0	< 0.5	< 0.5	< 2.5	< 5.0	2.9
OS3(60)	4-Mar-14	< 5.0	< 5.0	57.2	< 0.5	< 0.5	< 2.5	< 5.0	< 2.5
OS4(15)	5-Mar-15	< 5.0	< 5.0	96.2	< 0.5	< 0.5	< 2.5	< 5.0	< 2.5
OS4(30)	5-Mar-15	< 5.0	< 5.0	30.6	< 0.5	< 0.5	< 2.5	< 5.0	< 2.5
OS4(60)	5-Mar-15	< 5.0	< 5.0	38.8	< 0.5	< 0.5	< 2.5	< 5.0	< 2.5
OS5(15)	4-Mar-14	< 5.0	< 5.0	42.9	< 0.5	< 0.5	< 2.5	< 5.0	< 2.5
OS5(30)	4-Mar-14	< 5.0	< 5.0	60.4	< 0.5	< 0.5	< 2.5	< 5.0	2.5
OS5(60)	4-Mar-14	< 5.0	< 5.0	61.1	< 0.5	< 0.5	< 2.5	< 5.0	< 2.5
DOWNGRADIENT MONITORING WELLS									
DM1(15)	12-Mar-14	< 5.0	< 5.0	15.3	< 0.5	< 0.5	< 2.5	< 5.0	< 2.5
DM1(30)	12-Mar-14	< 5.0	< 5.0	22.3	< 0.5	< 0.5	< 2.5	< 5.0	< 2.5
DM1(60)	12-Mar-14	< 5.0	< 5.0	79.8	< 0.5	< 0.5	< 12.5	< 5.0	< 2.5
DM2(15)	5-Mar-14	< 5.0	< 5.0	89.0	< 0.5	< 0.5	< 2.5	< 5.0	< 2.5
DM2(30)	5-Mar-14	< 5.0	< 5.0	30.3	< 0.5	< 0.5	< 2.5	< 5.0	< 2.5
DM2(60)	5-Mar-14	< 5.0	< 5.0	39.5	< 0.5	< 0.5	< 2.5	< 5.0	< 2.5
DM3(15)	12-Mar-14	< 5.0	< 5.0	18.0	< 0.5	< 0.5	< 2.5	< 5.0	< 2.5
DM3(30)	12-Mar-14	< 5.0	< 5.0	44.8	< 0.5	< 0.5	< 2.5	< 5.0	< 2.5
DM3(60)	12-Mar-14	< 5.0	< 25*	102.0	< 0.5	< 0.5	< 2.5	< 5.0	< 2.5
EXTRACTION MONITORING									
EM1	25-Feb-14	< 5.0	< 5.0	152.0	< 0.5	< 0.5	< 2.5	< 5.0	< 2.5
EM2	25-Feb-14	< 5.0	< 5.0	50.0	< 0.5	< 0.5	< 2.5	< 5.0	< 2.5
EM3	25-Feb-14	< 5.0	< 5.0	57.2	< 0.5	< 0.5	< 2.5	< 5.0	< 2.5
EM4	25-Feb-14	< 5.0	< 5.0	18.8	< 0.5	< 0.5	< 2.5	< 5.0	< 2.5
INJECTION MONITORING WELLS									
IM1N	25-Feb-14	< 5.0	< 5.0	100.0	< 0.5	< 0.5	< 2.5	< 5.0	< 2.5
IM1S	25-Feb-14	< 5.0	< 5.0	155.0	< 0.5	< 0.5	< 2.5	< 5.0	< 2.5
IM2N	25-Feb-14	< 5.0	< 5.0	121.0	< 0.5	< 0.5	< 2.5	< 5.0	< 2.5
IM2S	25-Feb-14	< 5.0	< 5.0	46.6	< 0.5	< 0.5	< 2.5	< 5.0	< 2.5
IM3N	25-Feb-14	< 5.0	< 5.0	110.0	< 0.5	< 0.5	< 2.5	< 5.0	3.2
IM3S	25-Feb-14	< 5.0	< 5.0	45.4	< 0.5	< 0.5	< 2.5	< 5.0	< 2.5
IM4N	25-Feb-14	< 5.0	< 5.0	49.7	< 0.5	< 0.5	< 2.5	< 5.0	< 2.5
IM4S	25-Feb-14	< 5.0	< 5.0	104.0	< 0.5	< 0.5	< 2.5	< 5.0	< 2.5
IM5N	25-Feb-14	< 5.0	< 5.0	150.0	< 0.5	< 0.5	< 2.5	< 5.0	< 2.5
IM5S	25-Feb-14	< 5.0	< 5.0	154.0	< 0.5	< 0.5	< 2.5	< 5.0	< 2.5
EFFLUENT TANK									
SBR EFF	NR	NR	NR	NR	NR	NR	NR	NR	NR
MCL's		**6.0 ug/l GCTL/PDWS**	**10.0 ug/l GCTL/PDWS**	**2000 ug/l GCTL/PDWS**	**4.0 ug/l GCTL/PDWS**	**5.0 ug/l GCTL/PDWS**	**100 ug/l GCTL/PDWS**	**140 ug/l GCTL**	**1000 ug/l GCTL/SDWS**

NR= No Report
PDWS= Primary Drinking Water Standard
SDWS= Secondary Drinking Water Standard
GCTL= Groundwater Clean-Up Target Level

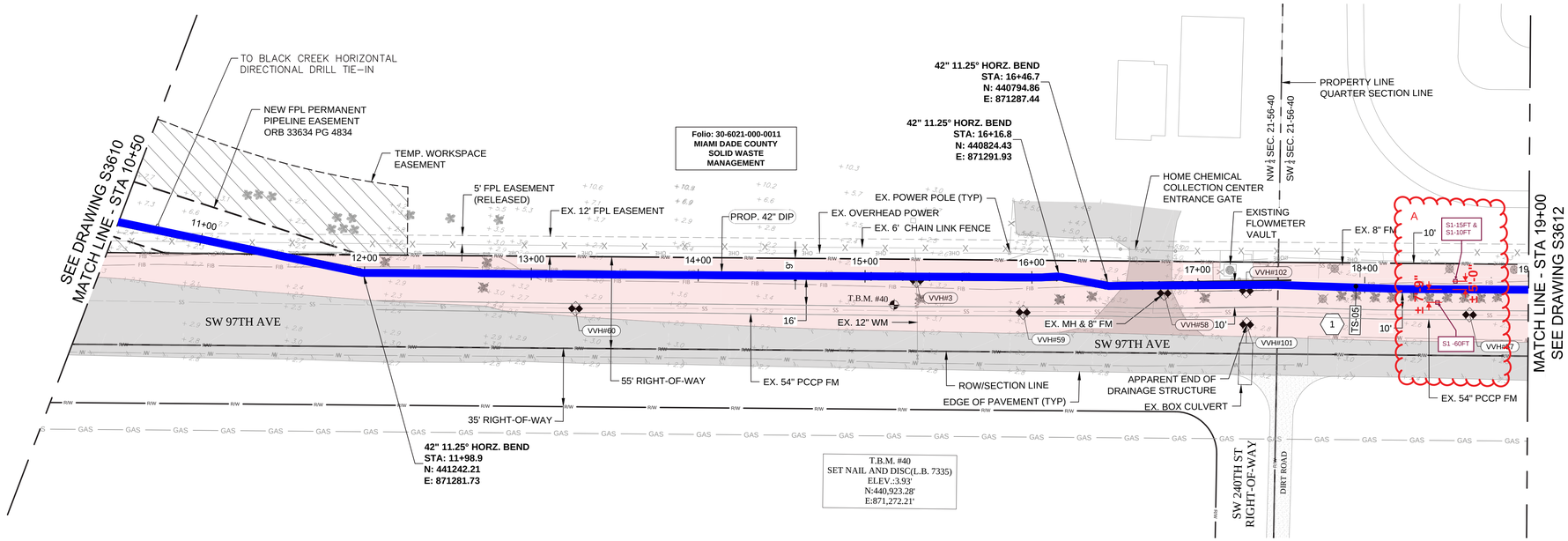
Table 3 Cont. **GROUNDWATER MONITORING**
METALS
LABORATORY: Pace
SAMPLED BY: Pace

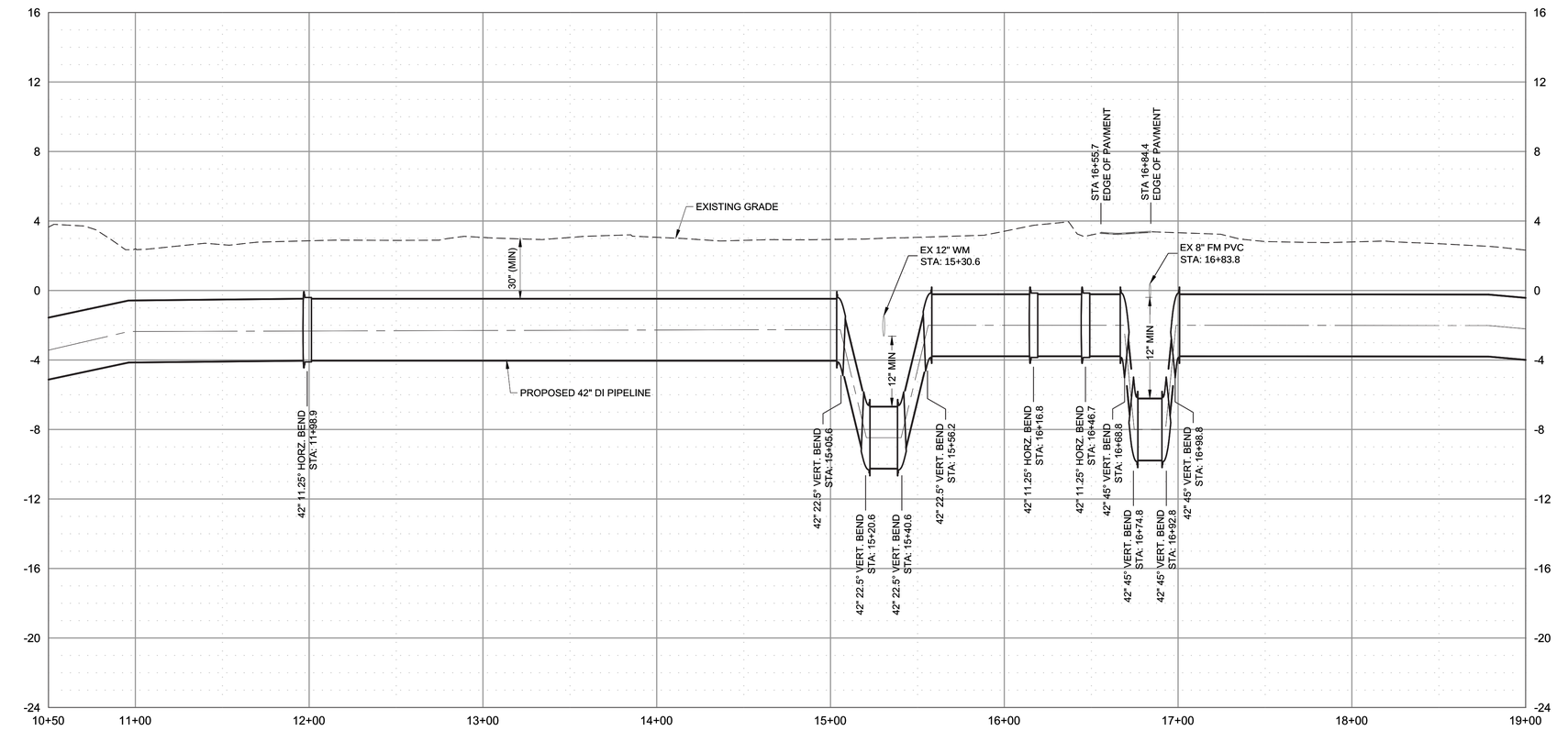
Old South Dade Landfill
First Semiannual Sampling 2014

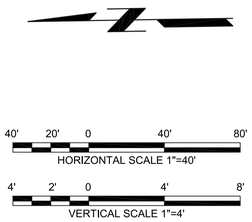
Well	Sampling Date	Fe *ug/l*	Pb ug/l	Pb ug/l	Ni ug/l	Se ug/l	Ag *ug/l*	Na *mg/l*	Va *ug/l*	Zn *ug/l*	Tl *ug/l*	Hg *ug/l*
HISTORIC WELLS												
OS1(15)	24-Feb-14	1,620	21.10	< 5.00	< 2.50	< 7.50	< 2.50	48	< 5.00	290.00	< 0.50	< 0.10
OS1(30)	24-Feb-14	1,420	5.50		< 2.50	< 7.50	< 2.50	1020	< 5.00	134.00	< 0.50	< 0.10
OS1(60)	24-Feb-14	30	< 5.00		< 2.50	< 7.50	< 2.50	18	< 5.00	< 10.00	< 0.50	< 0.10
OS2(15)	24-Feb-14	1,460	21.60	< 5.00	< 2.50	< 7.50	< 2.50	47	< 5.00	292.00	< 0.50	< 0.10
OS2(30)	24-Feb-14	1,400	< 5.00		< 2.50	< 7.50	< 2.50	19	< 5.00	37.40	< 0.50	< 0.10
OS2(60)	24-Feb-14	26	< 5.00		< 2.50	< 7.50	< 2.50	20	< 5.00	< 10.00	< 0.50	< 0.10
OS3(15)	4-Mar-14	22	< 5.00		< 2.50	< 7.50	< 2.50	1,620	< 5.00	< 10.00	< 0.50	< 0.10
OS3(30)	4-Mar-14	4,630	< 5.00		< 2.50	< 7.50	< 2.50	2,020	< 5.00	< 10.00	< 0.50	< 0.10
OS3(60)	4-Mar-14	1,780	< 5.00		< 2.50	< 7.50	< 2.50	2,180	< 5.00	< 10.00	< 0.50	< 0.10
OS4(15)	5-Mar-15	1,510	< 5.00		< 2.50	< 7.50	< 2.50	2,420	< 5.00	< 10.00	< 0.50	< 0.10
OS4(30)	5-Mar-15	32	< 5.00		< 2.50	< 7.50	< 2.50	1,020	7.00	< 10.00	< 0.50	< 0.10
OS4(60)	5-Mar-15	< 20	< 5.00		< 2.50	< 7.50	< 2.50	1,260	7.10	< 10.00	< 0.50	< 0.10
OS5(15)	4-Mar-14	60	< 5.00		< 2.50	< 7.50	< 2.50	1,460	< 5.00	< 10.00	< 0.50	< 0.10
OS5(30)	4-Mar-14	2,500	< 5.00		< 2.50	< 7.50	< 2.50	2,170	< 5.00	< 10.00	< 0.50	< 0.10
OS5(60)	4-Mar-14	1,760	< 5.00		< 2.50	< 7.50	< 2.50	2,220	< 5.00	< 10.00	< 0.50	< 0.10
DOWNGRADIENT MONITORING WELLS												
DM1(15)	12-Mar-14	< 20	< 5.00		< 2.50	< 7.50	< 2.50	186	< 5.00	< 10.00	< 0.50	< 0.10
DM1(30)	12-Mar-14	< 20	< 5.00		< 2.50	< 7.50	< 2.50	375	< 5.00	< 10.00	< 0.50	< 0.10
DM1(60)	12-Mar-14	1,200	< 5.00		< 2.50	< 7.50	< 2.50	10,700	< 5.0	< 10.0	< 2.5*	< 0.10
DM2(15)	5-Mar-14	177	< 5.00		< 2.50	< 7.50	< 2.50	2,310	< 5.00	< 10.00	< 0.50	< 0.10
DM2(30)	5-Mar-14	< 20	< 5.00		< 2.50	< 7.50	< 2.50	1,020	7.0	< 10.00	< 0.50	< 0.10
DM2(60)	5-Mar-14	< 20	< 5.00		< 2.50	< 7.50	< 2.50	1,250	7.1	< 10.00	< 0.50	< 0.10
DM3(15)	12-Mar-14	546	< 5.00		< 2.50	< 7.50	< 2.50	189	< 5.00	< 10.00	< 1.0	< 0.10
DM3(30)	12-Mar-14	< 20	< 5.00		< 2.50	< 7.50	< 2.50	1,730	6.3	< 10.00	< 1.0	< 0.10
DM3(60)	12-Mar-14	3,560	< 5.00		< 2.50	< 7.50	< 2.50	10,500	< 5.00	< 10.00	< 2.5*	< 0.10
EXTRACTION MONITORING WELLS												
EM1	25-Feb-14	347	< 5.00		< 2.50	< 7.50	< 2.50	3,250	< 5.00	< 10.00	< 0.50	< 0.10
EM2	25-Feb-14	289	< 5.00		< 2.50	< 7.50	< 2.50	919	< 5.00	< 10.00	< 0.50	< 0.10
EM3	25-Feb-14	1,230	< 5.00		< 2.50	< 7.50	< 2.50	971	< 5.00	< 10.00	< 0.50	< 0.10
EM4	25-Feb-14	153	< 5.00		< 2.50	< 7.50	< 2.50	31	< 5.00	< 10.00	< 0.50	< 0.10
INJECTION MONITORING WELLS												
IM1N	25-Feb-14	922	< 5.00		< 2.50	< 7.50	< 2.50	2,290	< 5.00	< 10.00	< 0.50	< 0.10
IM1S	25-Feb-14	410	< 5.00		< 2.50	< 7.50	< 2.50	3,410	< 5.00	< 10.00	< 0.50	< 0.10
IM2N	25-Feb-14	34	< 5.00		< 2.50	< 7.50	< 2.50	2,770	< 5.00	< 10.00	< 0.50	< 0.10
IM2S	25-Feb-14	338	< 5.00		< 2.50	< 7.50	< 2.50	458	< 5.00	< 10.00	< 0.50	< 0.10
IM3N	25-Feb-14	223	< 5.00		< 2.50	< 7.50	< 2.50	2,850	< 5.00	< 10.00	< 0.50	< 0.10
IM3S	25-Feb-14	149	< 5.00		< 2.50	< 7.50	< 2.50	461	< 5.00	< 10.00	< 0.50	< 0.10
IM4N	25-Feb-14	255	< 5.00		< 2.50	< 7.50	< 2.50	948	< 5.00	< 10.00	< 0.50	< 0.10
IM4S	25-Feb-14	2,230	< 5.00		< 2.50	< 7.50	< 2.50	1,830	< 5.00	< 10.00	< 0.50	< 0.10
IM5N	25-Feb-14	28	< 5.00		< 2.50	< 7.50	< 2.50	3,570	< 5.00	< 10.00	< 0.50	< 0.10
IM5S	25-Feb-14	1,760	< 5.00		< 2.50	< 7.50	< 2.50	2,600	< 5.00	< 10.00	< 0.50	< 0.10
EFFLUENT TANK												
SBR EFF	NR	NR	NR		NR	NR	NR	NR	NR	NR	NR	NR
MCL's		**300 ug/l GCTL/SDWS**	**15 UG/L GCTL/PDWS**	**15 UG/L GCTL/PDWS**	**100 ug/l GCTL/PDWS**	**50 ug/l GCTL/PDWS**	**100 ug/l GCTL/SDWS**	**160 mg/l GCTL/PDWS**	**49 ug/l GCTL**	**5000 ug/l GCTL/SDWS**	**2.0 ug/l GCTL/PDWS**	**2.0 ug/l GCTL/PDWS**

NR= No Report
PDWS= Primary Drinking Water Standard
SDWS= Secondary Drinking Water Standard
GCTL= Groundwater Clean-Up Target Level
* Please see letter from lab

ATTACHMENT C







GENERAL NOTES:

1. PIPE JOINT DEFLECTION SHALL NOT EXCEED 50% OF MANUFACTURERS ALLOWABLE DEFLECTION.
2. THE CONTRACTORS LIMIT OF DISTURBANCE SHALL NOT EXCEED TEMPORARY EASEMENT AND TEMPORARY WORKSPACE BOUNDARIES.
3. REFER TO DRAWING S3661 FOR RESTRAINED JOINT TABLE.
4. REFER TO DRAWINGS S3660-S3662 FOR MECHANICAL DETAILS.
5. REFER TO DRAWINGS S3670-S3676 FOR CATHODIC PROTECTION DETAILS.
6. REFER TO DRAWINGS S3680-S3683 FOR STANDARD DETAILS.
7. EXISTING AT&T BURIED CABLES AND FIBER OPTICS TO BE REMOVED AND RELOCATED.
8. EXISTING TREES TO BE REMOVED IN ACCORDANCE WITH TURKEY POINT CONDITIONS OF CERTIFICATION (PA03-45G). TREES TO BE REMOVED APPROVED BY DERM ON 6/10/2023 VIA EMAIL.
9. CONTRACTOR TO REPLACE GRASSED, PAVEMENT, AND GRAVEL TURN-OFFS TO PRE-CONSTRUCTION CONDITIONS.
10. CONTRACTOR MAY STRING PIPE FOR HDD OPERATIONS ALONG RIGHT-OF-WAY.
11. CONTRACTOR TO PLACE DETECTABLE UNDERGROUND WARNING TAPE ONE FOOT THE TOP OF PIPE.

KEYNOTES:

(1) SEE TEST STATION SCHEDULE TABLE ON DRAWING S3676

LEGEND:

- UTILITY LOCATE TEST HOLE (VVH##)
- TEMPORARY BENCHMARK
- TS-## PROPOSED CATHODIC TEST STATION
- EXISTING TREE (TO BE REMOVED)
- FIB / CBL EXISTING AT&T BURIED CABLES
- RW EXISTING RIGHT-OF-WAY
- EXISTING PAVEMENT
- WORKSPACE LIMITS

NO	DATE	REVISIONS AND RECORD OF ISSUE	DRN	DES	CHK	PDE	APP
C	15/NOV/23	ISSUED FOR PERMIT REVIEW	CJG	CJG		OL	
B	15/SEP/23	ISSUED FOR REVIEW	CJG	CJG		OL	
A	16/JUN/23	ISSUED FOR PERMIT REVIEW	CJG	CJG		OL	

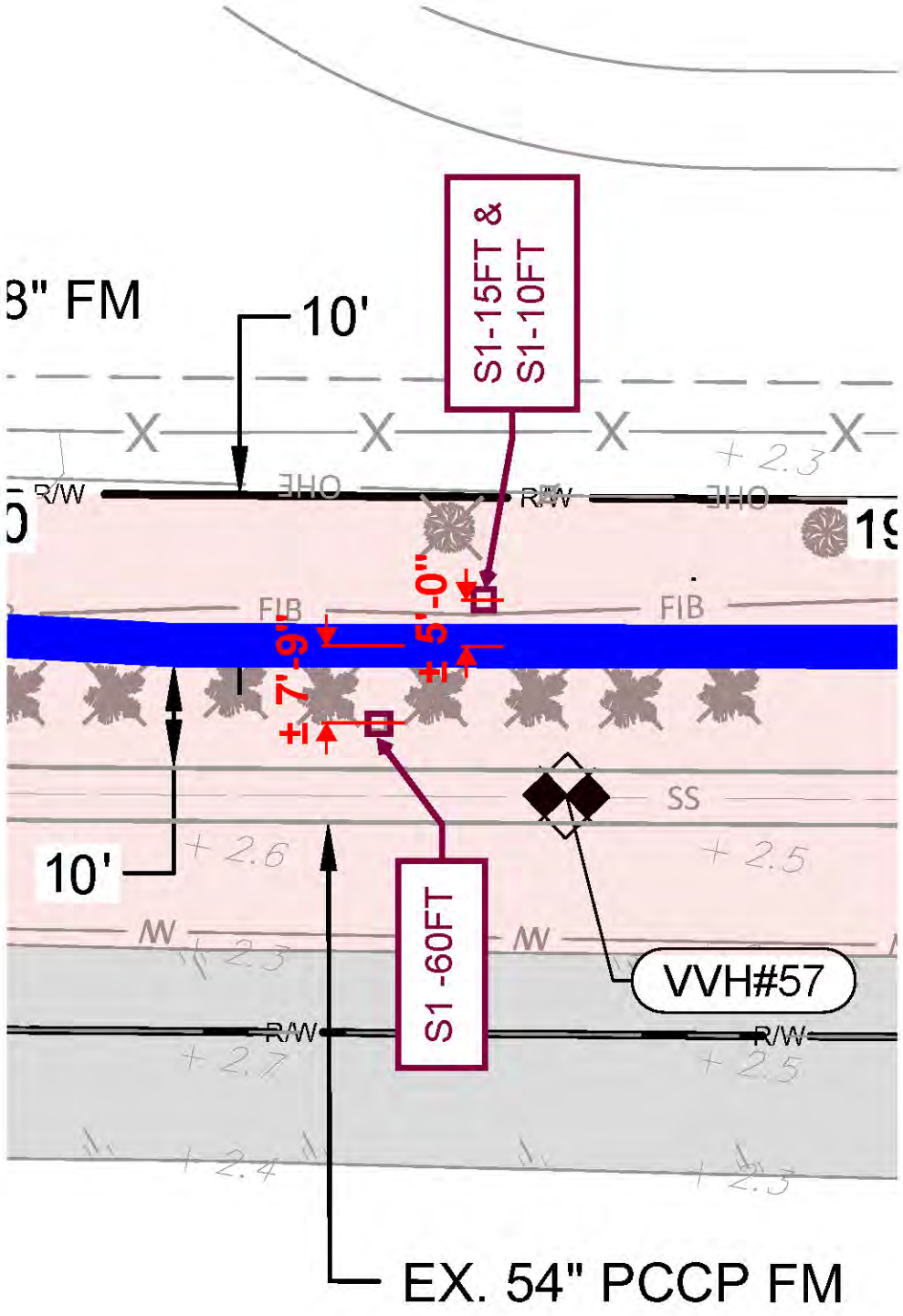
BLACK & VEATCH
11401 LAMAR AVENUE
OVERLAND PARK, KANSAS 66211

DESIGNER	DRAWN
CJG	CJG
CHECKED	DATE
MM	16/JUN/23

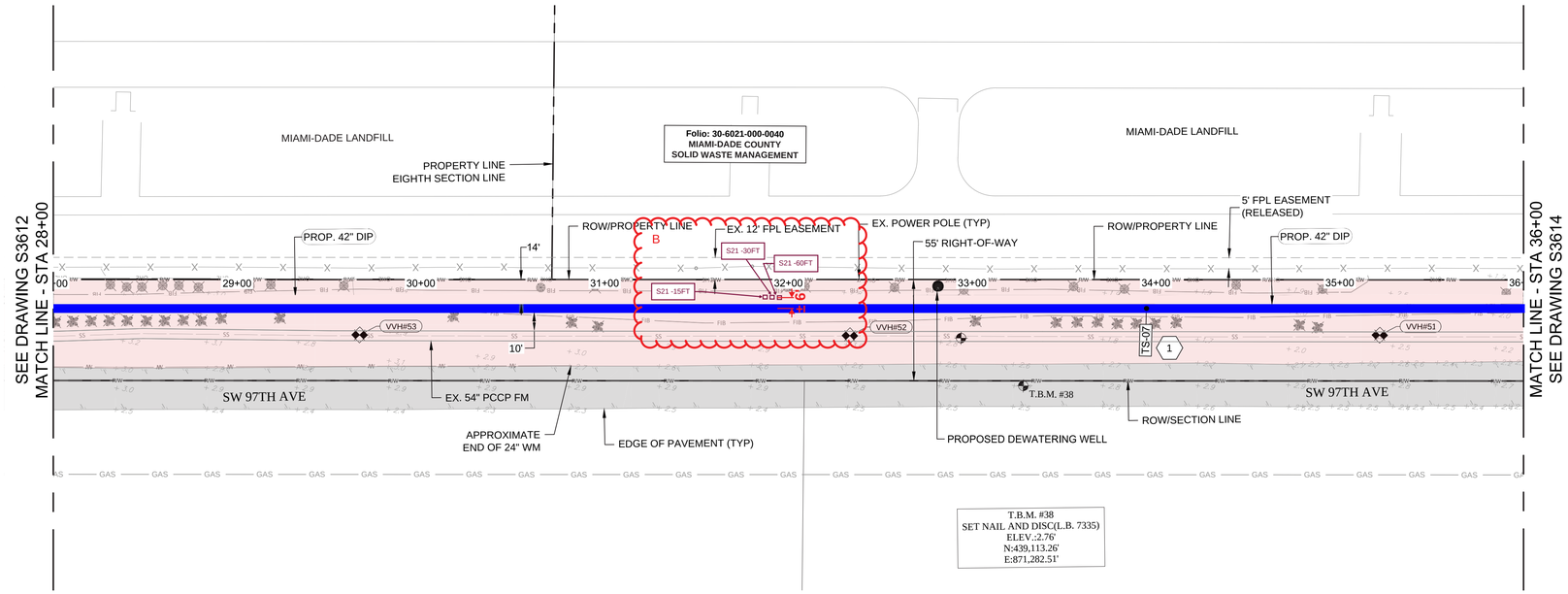
FLORIDA POWER & LIGHT
MIAMI-DADE CLEAN WATER RECOVERY CENTER
OFFSITE 42" REUSE PIPELINE - SDWWTP TO TURKEY POINT
PLAN AND PROFILE
STA 10+50 TO STA 19+00

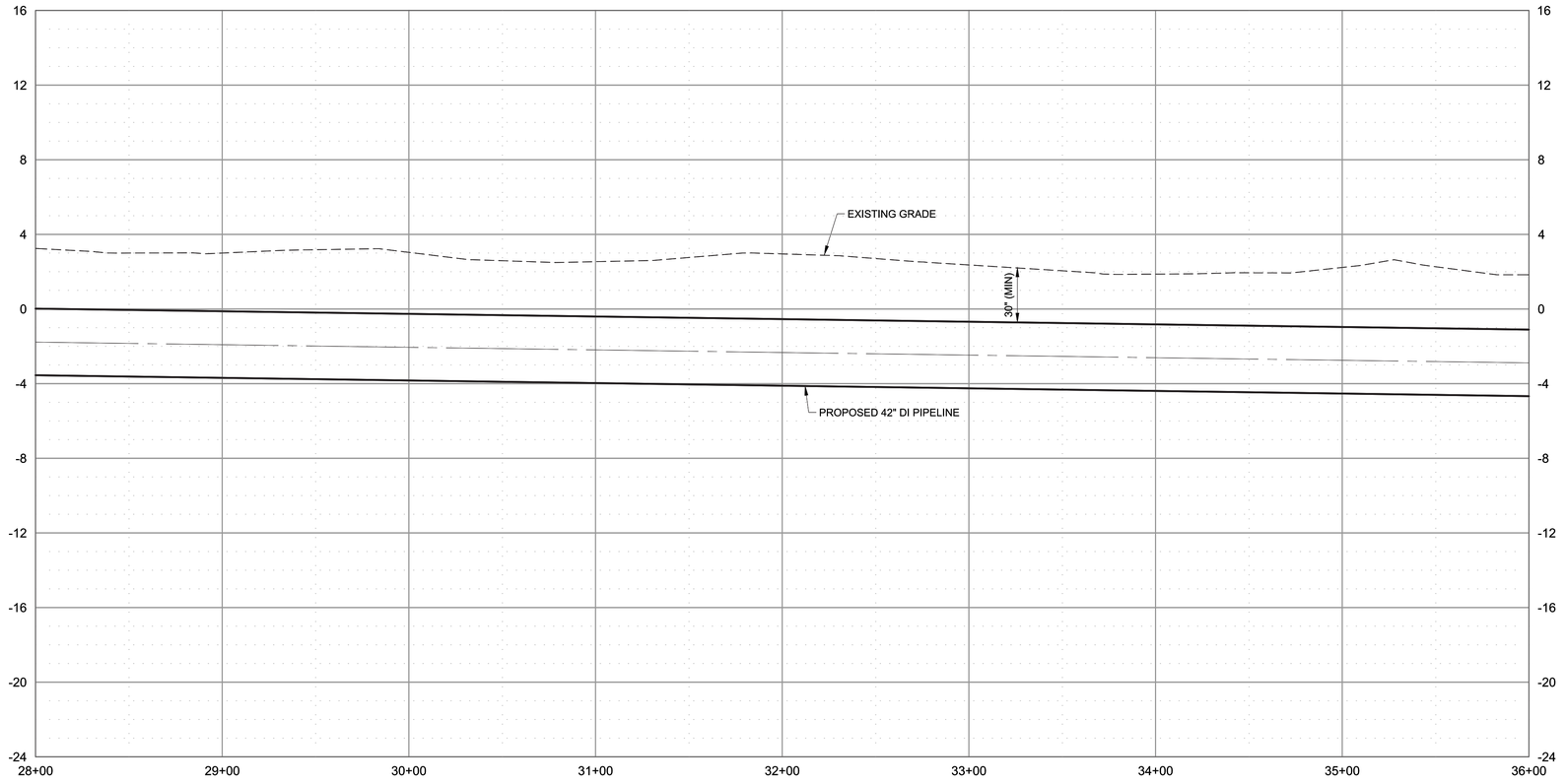
PROJECT 412398-5WWRRCW-S3611
DRAWING NUMBER S3611
REV C
CODE
AREA

MicroStation v10.15.0.74
Full Size 1 = 1
g1a104920
ANSI D 34x22
12/20/2022 06:16 PM


3" FM
10'
S1-15FT &
S1-10FT
X
X
X
X
+ 2.3
R/W
OHE
R/W
OHE
FIB
FIB
5'-0"
7'-9"
+1
+1
SS
10'
+ 2.6
+ 2.5
S1 -60FT
VVH#57
R/W
R/W
+ 2.7
+ 2.5
+ 2.4
+ 2.3
EX. 54" PCCP FM

A





40' 20' 0 40' 80'
HORIZONTAL SCALE 1"=40'

4' 2' 0 4' 8'
VERTICAL SCALE 1"=4'

GENERAL NOTES:

1. PIPE JOINT DEFLECTION SHALL NOT EXCEED 50% OF MANUFACTURERS ALLOWABLE DEFLECTION.
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3. REFER TO DRAWING S3661 FOR RESTRAINED JOINT TABLE.
4. REFER TO DRAWINGS S3660-S3662 FOR MECHANICAL DETAILS.
5. REFER TO DRAWINGS S3670-S3676 FOR CATHODIC PROTECTION DETAILS.
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10. CONTRACTOR TO PLACE DETECTABLE UNDERGROUND WARNING TAPE ONE FOOT THE TOP OF PIPE.

KEYNOTES:

(1) SEE TEST STATION SCHEDULE TABLE ON DRAWING S3676

LEGEND:

- UTILITY LOCATE TEST HOLE (VVH##)
- TEMPORARY BENCHMARK
- TS-## PROPOSED CATHODIC TEST STATION
- EXISTING TREE (TO BE REMOVED)
- FIB / CBL EXISTING AT&T BURIED CABLES
- ROW EXISTING RIGHT-OF-WAY
- EXISTING PAVEMENT
- WORKSPACE LIMITS

NO	DATE	REVISIONS AND RECORD OF ISSUE	DRN	DES	CHK	PDE	APP
B	15/NOV/23	ISSUED FOR PERMIT	CJG	CJG		OL	
A	16/JUN/23	ISSUED FOR PERMIT REVIEW	CJG	CJG		OL	

BLACK & VEATCH
11401 LAMAR AVENUE
OVERLAND PARK, KANSAS 66211

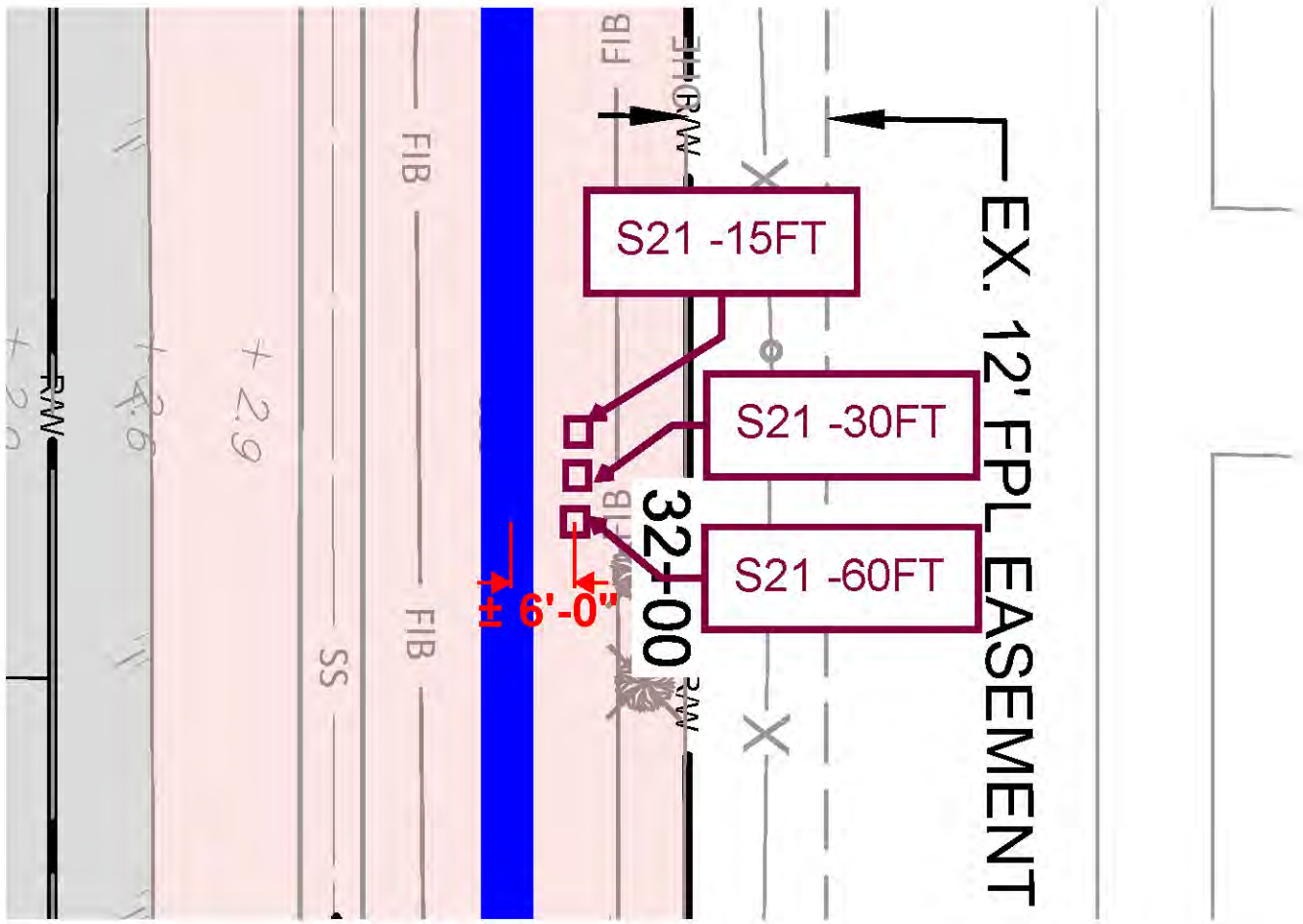
DESIGNER CJG | DRAWN CJG | CHECKED MM | DATE 16/JUN/23

FLORIDA POWER & LIGHT
MIAMI-DADE CLEAN WATER RECOVERY CENTER
OFFSITE 42" REUSE PIPELINE - SDWWTP TO TURKEY POINT
PLAN AND PROFILE
STA 28+00 TO STA 36+00

PROJECT 412398-5WWRRCW-S3613 | DRAWING NUMBER | REV B
CODE
AREA

MicroStation v10.15.0.74
Full Size 1 = 1
gia104920
ANSI D 34x22
6/22/2023 06:16 PM

B


EX. 12' FPL EASEMENT
S21 -15FT
S21 -30FT
S21 -60FT
± 6'-0"
32'-00"
FIB
FIB
FIB
SS
RW
RW
+ 2.9

ATTACHMENT D

PRIMERITE™ CT006

6" X 6" AUTOMATIC DRY SELF-PRIMING TRASH PUMP

MWI PUMPS
The Power to Move Water®

APPLICATIONS

Construction Dewatering

Sewage Bypass

Flood Drainage

Mining/Quarries

Municipal

General Industrial

The Primerite™ is the perfect pump for contractors, pump rental companies, mining operators and general industrial or municipal use. The pump's oil-filled bearing box and a mechanical seal in an oil bath enable it to run dry all day long for up to 24 hours, making it the right choice for handling inconsistent flows found in sewage bypass pumping and job site dewatering. This pump is completely self contained in either skid or trailer configurations with integral lifting bail, tie downs and fuel tank.

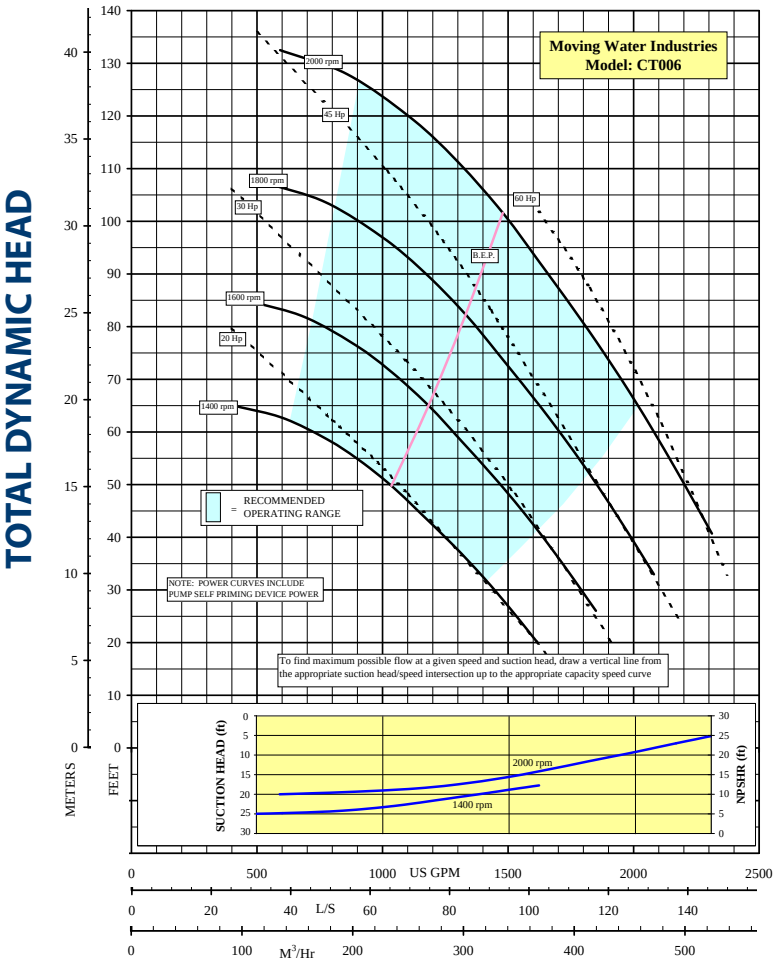
FEATURES

- Primes and reprimes automatically
- Solids handling up to 3"
- Engine driven compressor
- Vacuum and discharge pressure gauge
- Lockable fuel cap
- Forklift slots (skid models)
- Torsion bar axle
- Integral 78 fuel tank with gauge
- Skid or optional trailer-mounted
- DOT light kit available
- Hydraulic surge brakes standard, electric brakes available
- Front and rear stabilizing jacks
- 3" Lunette ring for pintle hitch – Other options available
- Lifting bail
- Volute drain
- Heavy-duty truck tie downs
- Engines – Caterpillar, Perkins, John Deere and Deutz available
- Flexible flywheel coupling
- 6" ANSI Pattern flanges – Suction and discharge
- Optional float activated, auto start/stop controls
- Manufactured in the USA

QUICK SPECIFICATIONS	
Suction connection	6" 150# ANSI B16.5
Delivery connection	6" 150# ANSI B16.5
Max capacity	2300 USGPM
Max solids handling	3.0"
Max impeller diameter	10.8"
Max head (TDH)	160'
Max operating speed	2000 RPM
Max suction lift	25'
Dimensions	65 x 93 x 132"
Sound levels w/ enclosure	67 dBA at 7M / 23'
Max fuel consumption	At 67 HP; up to 20 hr run time



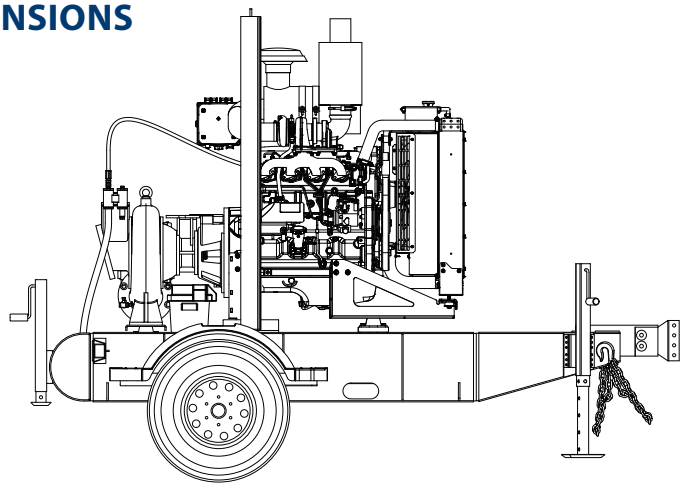
PERFORMANCE CURVE

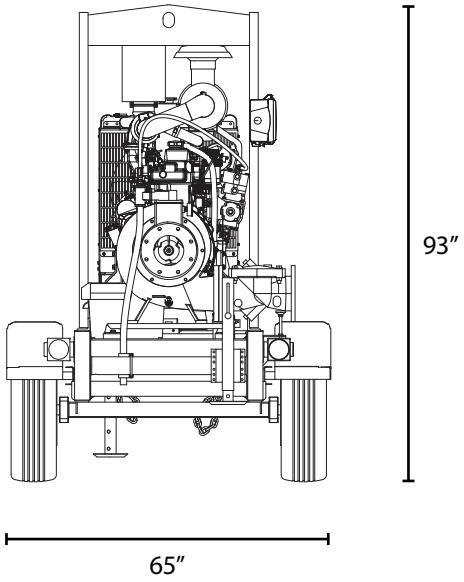


WATER FLOW

MATERIALS & SPECIFICATIONS	
Standard engine	John Deere 4045TF290
Max HP	74 HP
Fuel capacity	78 Gal
Drive type	Flywheel direct drive flexible element
Impeller	CA-40 Corrosion resistant iron/chromium alloy
Volute	Ductile cast iron ASTM A536 grade 70-50-05
Pump shaft	1045 Steel; Stainless steel option
Compressor	Engine-driven, oil lubricated and water cooled
Priming assembly	304 Stainless steel venturi
Control panel	Tach and hour meter, including shutdowns for low oil pressure, high coolant temperature, Plug-N-Play and float-ready
Discharge non-return valve	Val-matic swing flex check valve ASTM A536 grade 65-45-12
Mechanical seal	Stainless steel with silicon carbide faces; Buna elastomers
Weight of trailer mounted unit	3450 lbs (dry)

DIMENSIONS





MWI Pumps Headquarters
33 NW 2nd Street | Deerfield Beach, FL 33441
Copyright © 2020 MWI Pumps | All rights reserved. Subject to change without notice.
Inquiries: 954-426-1500 | Fax: 954-426-8938 | Email: info@mwipumps.com | **mwipumps.com**

18,000 gallon weir tank

RECON OUTFITTERS
VETERAN OWNED BUSINESS

Epoxy lined smooth wall for ease of cleaning

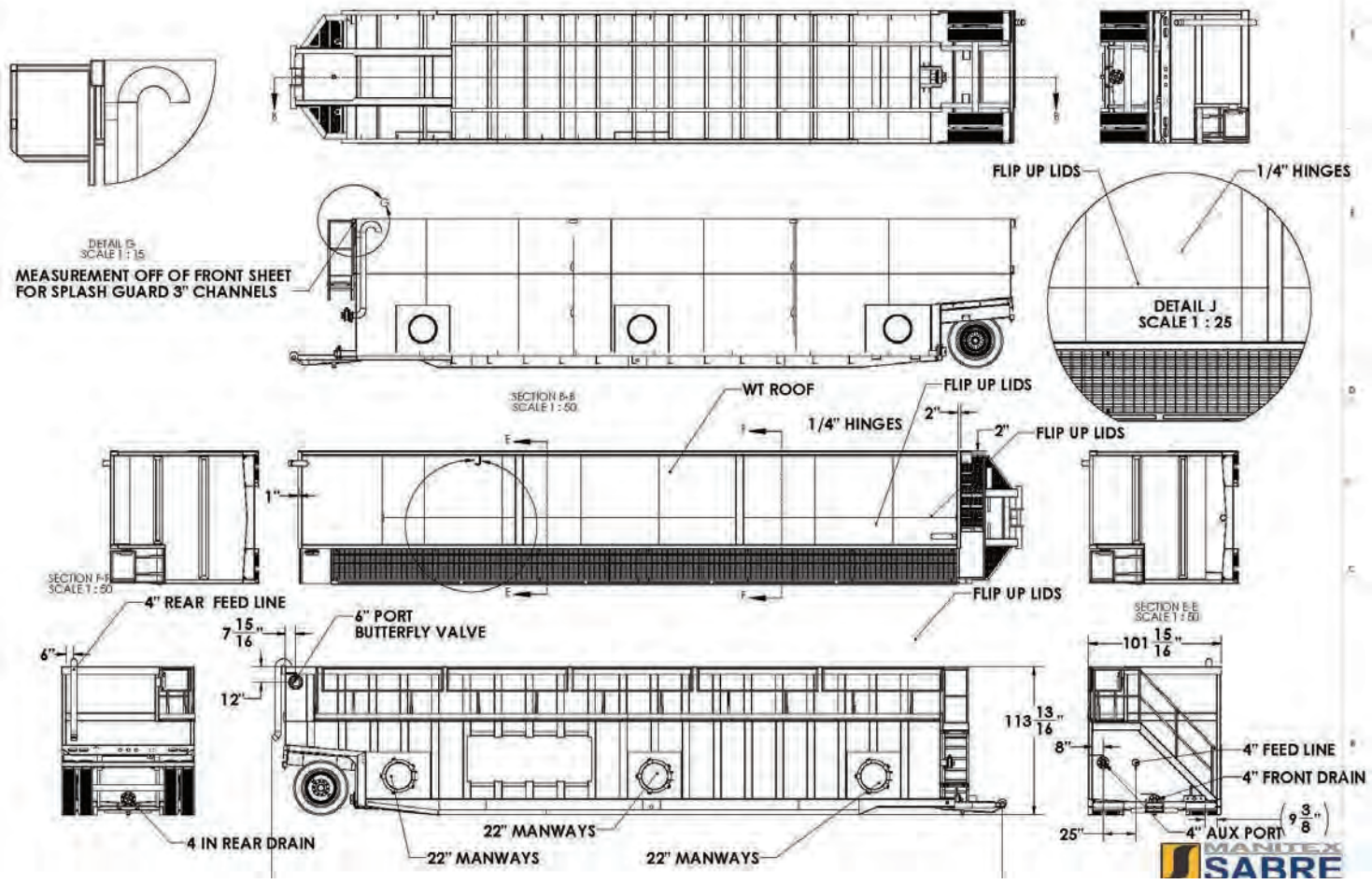
Lockable Flip-top or open top

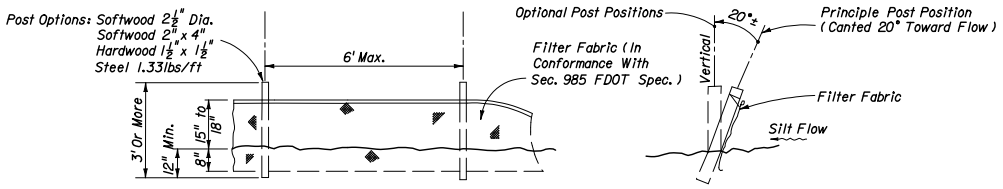
"RECON Ready" fixed handrails

Sediment removal / oil-water separation
Floc logs to enhance sediment removal
Tank connections allow for manifolding multiple tanks together



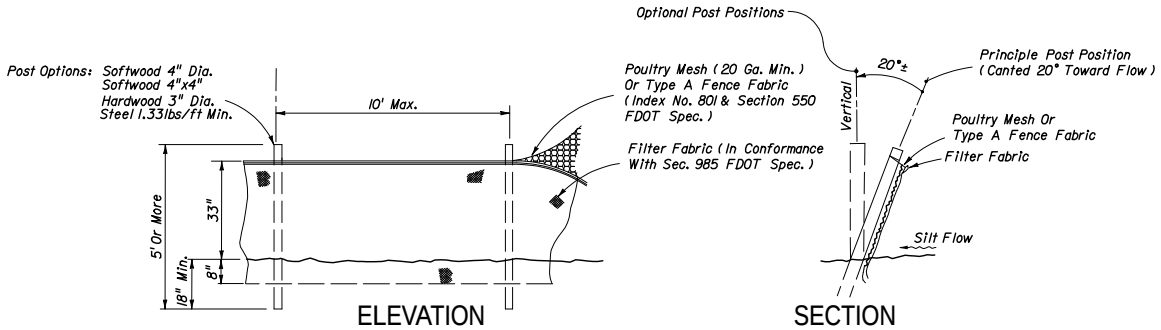






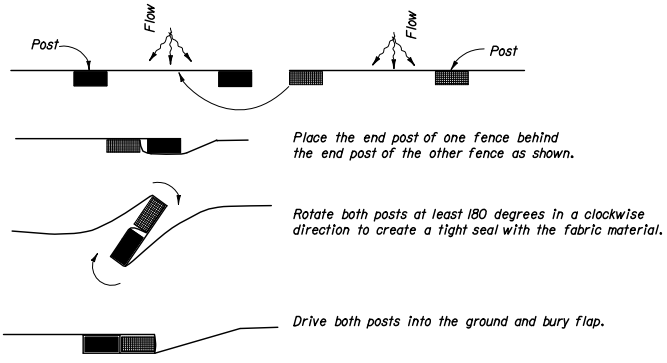
ELEVATION SECTION

TYPE III SILT FENCE



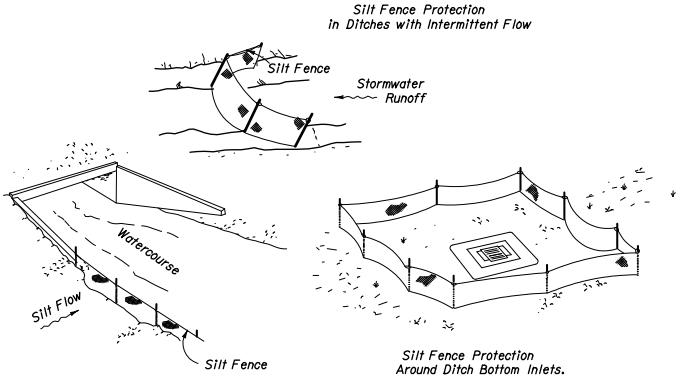
ELEVATION SECTION

TYPE IV SILT FENCE



PLAN VIEW

JOINING TWO SILT FENCES



SILT FENCE APPLICATIONS

NOTES FOR SILT FENCES

1. *Type III Silt Fence to be used at most locations.*
2. *Type IV Silt Fence to be used where large sediment loads are anticipated. Suggested use is where fill slope is 1:2 or steeper and length of slope exceeds 25 feet.*
3. *Do not construct silt fences across permanent flowing watercourses. Silt fences are to be at upland locations and turbidity barriers used at permanent bodies of water.*
4. *Where used as slope protection, Silt Fence is to be constructed on 0% longitudinal grade to avoid channelizing runoff along the length of the fence.*

TIERRA GROUP™ Assured Geoscience Solutions	PROJECT: FPL CWRC PIPELINE	CLIENT: GIANNETTI CONTRACTING CORP.	
	SEDIMENT CONTROL - SILT FENCE STANDARDS	DATE: 4/17/2023	DRAWN BY: LS

O: (954) 202 9226 E: ADMIN@TIERRACONSULTING.COM WWW.TIERRACONSULTING.COM

ATTACHMENT E

STORMWATER POLLUTION PREVENTION PLAN –

MIAMI-DADE COUNTY SOUTH DISTRICT WASTEWATER TREATMENT PLANT TO FLORIDA POWER & LIGHT CLEAN WATER RECOVERY CENTER 8-MILE RECLAIMED WATER PIPELINE PROJECT

REVISION 1

PREPARED FOR

Overland Contracting, Inc.

JANUARY 2023

SWPPP PREPARATION CERTIFICATION

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."



Signature (Operator and/or Responsible Authority) — Date: June 20, 2023

Gary Krage — Project Manager / AVP

Name (Operator and/or Responsible Authority) — Title

SWPPP CONTRACTOR/SUBCONTRACTOR CERTIFICATION

This SWPPP must clearly identify, for each measure identified within the SWPPP, the contractor(s) or subcontractor(s) that will implement each measure. All contractor(s) and subcontractor(s) identified in the SWPPP must sign the following certification:

"I certify under penalty of law that I understand, and shall comply with, the terms and conditions of the State of Florida Generic Permit for Stormwater Discharge from Large and Small Construction Activities and this Stormwater Pollution Prevention Plan prepared thereunder."

Name	Title	Company Name, Address and Phone Number	Date

ACRONYMS & ABBREVIATIONS

Acronym/Abbreviation	Definition
BMP	Best Management Practice
CWRC	Clean Water Recovery Center
DERM	Miami-Dade County Regulatory Economic Resources Department of Environmental Resources Management
FDEP	Florida Department of Environmental Protection
FPL	Florida Power & Light
Generic Permit	*NPDES Generic Permit for Stormwater Discharge from Large and Small Construction Activities*
HDD	Horizontal Directional Drill
MS4	Municipal Separate Storm Sewer System
NOI	Notice of Intent
NPDES	National Pollutant Discharge Elimination System
OCI	Overland Contracting, Inc.
Project	Miami-Dade South District Wastewater Treatment Plant to FPL Clean Water Recovery Center Reclaimed Water Pipeline
ROW	Right-of-way
SDS	Safety Data Sheet
SDWWTP	Miami Dade County South District Wastewater Treatment Plant
SFWMD	South Florida Water Management District
SWPPP	Stormwater Pollution Prevention Plan
USACE	U.S. Army Corps of Engineers

TABLE OF CONTENTS

1.0 Introduction 1-1

2.0 Project Information 2-1

2.1 Location 2-1

2.2 Nature of Construction 2-2

2.3 Construction Sequence 2-3

2.4 Disturbance Area 2-4

2.5 Soils and Stormwater Quality 2-4

2.6 Drainage Areas and Discharge Locations 2-4

3.0 Best Management Practices 3-1

3.1 Sediment Erosion Control Measures 3-1

3.2 Stabilization Measures 3-2

3.3 Structural Controls 3-3

4.0 Potential Pollutants 4-1

5.0 Inspections & Maintenance 5-1

Appendix A. Florida Generic Permit A-1

Appendix B. Notice of Intent B-1

Appendix C. Site Map C-1

Appendix D. Best Management Practice Details D-1

Appendix E. Dewatering Plan for Giannetti Corporation FPL CWRC Project – Reclaimed Water Pipeline E-1

Appendix F. HDD Contingency Plan F-1

Appendix G. FDEP Inspection Forms G-1

Appendix H. Corrective Actions Log H-1

Appendix I. Training Log I-1

Appendix J. Record of SWPPP Revisions J-1

Appendix K. Delegation of Authority K-1

1.0 Introduction

This Stormwater Pollution Prevention Plan (SWPPP) has been prepared to comply with the requirements identified in the Florida Department of Environmental Protection (FDEP) *National Pollutant Discharge Elimination System (NPDES) Generic Permit for Stormwater Discharge from Large and Small Construction Activities (Generic Permit),* effective 02/2015 (Appendix A). The template provided by the FDEP for SWPPP development was used as the foundation of the document.

As per the template:

- *The SWPPP shall be completed prior to the submittal of the Notice of Intent (NOI) (Appendix B) to be covered under the FDEP's Generic Permit for Stormwater Discharge from Large and Small Construction Activities.*

- *The SWPPP shall be amended whenever there is a change in design, construction, operation, or maintenance, which has a significant effect on the potential for discharge of pollutants to surface waters of the state or a Municipal Separate Storm Sewer System (MS4). The SWPPP also shall be amended if it proves to be ineffective in significantly reducing pollutants from sources identified in Part V.D.1. of the permit. The SWPPP also shall be amended to indicate any new contractor and/or subcontractor that will implement any measure of the SWPPP. All amendments shall be signed, dated, and kept as attachments to the original SWPPP.*

2.0 Project Information

2.1 Location

Project Name and Location Information:	*Florida Power & Light Company (FPL)* *8-Mile Reclaimed Water Pipeline between the Miami Dade County South District Wastewater Treatment Plant (SDWWTP) and FPL Clean Water Recovery Center (CWRC)* *Start: 8950 SW 232nd St, Miami, FL 33190* *End: Palm Dr, Homestead, FL 33033* *The waterline corridor is approximately eight miles in length and approximately 60 feet wide. From the SDWWTP, the waterline exits south to the South Dade Landfill property underneath the Black Creek (C-1) Canal via trenchless methods. The corridor follows SW 97th Avenue south approximately 0.6 mile to the intersection with SW 248th Street/Coconut Palm Drive, crosses under SW 248th Street/Coconut Palm Drive and Goulds Canal via trenchless methods and continues approximately 0.5 mile along the western perimeter of a closed landfill (Old South Dade Landfill), then south approximately 0.25 mile through an undeveloped parcel to reach the FPL transmission line corridor at SW 261st Street. The waterline continues south within the FPL transmission line corridor approximately 6.3 miles to reach the Unit 5 Site. Along this segment, the corridor crosses the Princeton (C-102), Military, unnamed (SW 312th Street), Mowry (C-103), Homestead (North), and L31E Canals via trenchless methods. The waterline right-of-way will be located primarily within the existing transmission line right-of-way (ROW) and adjacent to existing road rights-of-way.*

A site map must be developed and must contain, at a minimum, the following information:

1. Drainage patterns,
2. Approximate slopes after major grading activities,
3. Areas of soil disturbance,
4. Outline all areas that are not to be disturbed,
5. Location of all major structural and non-structural controls,
6. The location of expected stabilization practices,
7. Wetlands and surface waters, and
8. Locations where stormwater may discharge to a surface water or MS4

The site map depicting the information listed above can be found in Appendix C. Best Management Practices Details are provided in Appendix D.

2.2 Nature of Construction

Describe the nature of the construction activities:

On the behalf of FPL, Overland Contracting Inc. (OCI) and its subconsultant Giannetti, plan to construct a 42-inch, 8-mile-long reclaimed water pipeline between SDWWTP and the FPL CWRC. Giannetti will be responsible for installing, maintaining, and removing (when appropriate) BMPs and overall implementation of this plan. OCI will be responsible for conducting inspections.

The pipeline will be constructed within a 60-foot-wide temporary construction corridor and limited additional workspace for horizontal directional drill (HDD) crossings.

Wetland impacts are permitted through the FDEP and U.S. Army Corps of Engineers (USACE) and include 0.40 acre of permanent impacts to existing jurisdictional dwarf mangrove scrub-shrub wetlands for the placement of clean fill for access manholes, isolation valves, and air release valves and a total of approximately 40.52 acres of temporary impacts to jurisdictional mangrove wetland associated with temporary trench excavation and construction matting and access areas. The approximate distance for trenching is 6.93 miles and HDD for a total of 1.27 miles.

Soil-disturbing activities will include creation of temporary construction entrances, clearing and grubbing, installation of erosion and sediment control measures, topsoil stripping and segregation, open-cut trenching, temporary trench dewatering, pipe installation, and immediate restoration. All waterbodies will be crossed using HDD.

Dewatering Approach
Ground surface elevation at the proposed dewatering site varies with a maximum elevation of +6.0 feet relative to the North American Vertical Datum of 1988 (NAVD). Average groundwater elevation at the dewatering site varies between -0.3 and -0.4 feet NAVD; the maximum bottom elevation of the trenches is -11.2 feet NAVD.

Dewatering fluids will be pumped from the excavation trenches using a self-priming six-inch (6") vacuum pump, or equivalent, to a nominal 40' wide by 400' long, above-grade infiltration basin using soil excavated from the trenches. The basin will be initially constructed adjacent to the trench line but as the trenching proceeds the basin will be constructed over the backfilled trenches to minimize the disturbed area. The footprint of the basin will move forward as the trenching work proceeds.

The basin walls will be covered with polyethylene sheeting to prevent lateral migration and will be further protected by silt fencing to reduce adjacent surface flows. Turbidity curtains will be installed spaced 100'apart. Infiltration trench size requirements, and associated infiltration basin area requirements, derived using the Florida Department of Transportation (FDOT) Drainage Handbook Exfiltration Systems (February 2012).

Trench boxes will be employed during trench excavation and pipe installation work to comply with OSHA requirements. The trench boxes will also reduce potential localized exfiltration from the L-31E Canal adjacent to the trench work. Additionally, positive infiltration via recharge into the subsurface

aquifer from the basin due to elevation head differential will further reduce potential exfiltration from the L-31E Canal.

If necessary, effluent will be pumped from the infiltration basin using a four-inch (4") pump, or equivalent and through an 18,000-gallon sedimentation weir tank prior to discharge into two-foot diameter temporary drainage wells installed in the project area and located to minimize disruption to active trench dewatering. The capacity of temporary drainage wells is 495 gallons per minute per foot of head. Well locations are contingent on underground and overhead utility clearance.

Dewatering assumptions are based on the time to dig, dewater, and install subsurface infrastructure during daylight working hours. Dewatering duration for this portion of the pipeline project is estimated at ten (10) hours per day for one hundred and thirty-eight (138) working days, based on a planned production rate of 200 linear feet per day with a 1.25 Factor of Safety added to account for weather delays, equipment breakdowns, and other unforeseen circumstances.

2.3 Construction Sequence

Describe the intended sequence of major soil disturbing activities:

<u>Pipeline</u>

The general sequence of pipeline construction activities will include the following. Note, the pipeline will be constructed in segments to limit the amount of disturbed ground at any point in time. See dewatering section above for details of segment lengths.

1. Survey the limits of the construction site.
2. Install temporary sediment controls measures and sediment tracking devices, where necessary to prevent sediment from leaving the workspace.
3. Prepare the site for construction activities.
4. Clear and remove any vegetation, where permitted.
5. Strip and stockpile topsoil for reuse.
6. Grade site.
7. String pipe along the ROW.
8. Excavate trench (topsoil segregated from subsoil).
9. Dewater pipeline in segments.
10. Lower the pipe into the trench.
11. Backfill the trench with the excavated spoil material.
12. Re-grade the ROW to pre-construction contours with topsoil to allow pre-construction vegetation community to re-establish.
13. Clean-up and remove excess materials and debris.
14. Complete final site stabilization and remove any remaining temporary erosion and sediment control measures.

Describe the intended sequence of major soil disturbing activities:

2.4 Disturbance Area

Total area of the project area:	Approximately 61 acres
Total area of the site to be disturbed:	Approximately 61 acres

2.5 Soils and Stormwater Quality

Existing data describing the soil or quality of any stormwater discharge from the site:

According to the U.S. Department of Agriculture Soil Conservation Service, Dade County, Florida Soil Survey data, soils mapped within the water pipeline corridor include:

Map unit symbol	***Map unit name***	***Drainage Class***
3	*Shark Valley muck, 0 to 1 percent slopes, frequently flooded*	*Very poorly drained*
6	*Perrine marly silt loam, drained, 0 to 1 percent slopes*	*Very poorly drained*
9	*Udorthents-Water-Urban land complex, 0 to 60 percent slopes*	*Well drained*
15	*Urban land, 0 to 2 percent slopes*	---
16	*Biscayne marly silt loam, drained, 0 to 1 percent slopes*	*Very poorly drained*
31	*Trout Cove marly silt loam, tidal, 0 to 1 percent slopes*	*Very poorly drained*
32	*Keylargo muck, tidal, 0 to 1 percent slopes*	*Very poorly drained*

Surface waters will be sampled at all impacted locations prior to work to establish background levels. Stormwater discharge to offsite sources will be maintained below 29 NTU against background.

2.6 Drainage Areas and Discharge Locations

Estimate the drainage area in size for each discharge point:	*Not applicable for this project scope. No point discharges are proposed.*
Latitude and longitude of each discharge point and identify the receiving water or MS4 for each discharge point:	

Not applicable, no point discharges for construction stormwater are proposed. The construction ROW traverses six drainage basins including:

- *C1-East*
- *Goulds Canal*
- *C-102 East*
- *BD-C103 East*
- *North Canal*
- *DA-4*

Water from construction dewatering activities will be pumped to a secondary trench and then a frac-tank for sediment settling prior to being discharged into a deep injection well, within the construction ROW. See Appendix E for dewatering details including locations of deep injection wells.

3.0 Best Management Practices

Give a detailed description of all controls, Best Management Practices (BMPs) and measures that will be implemented at the construction site for each activity identified in the intended sequence of major soil disturbing activities section. Provide time frames in which the control will be implemented. NOTE: All controls shall be consistent with performance standards for erosion and sediment control and stormwater treatment set forth in s. 62-40.432, F.A.C., the applicable Stormwater or Environmental Resource Permitting requirements of the Department or a Water Management District, and the guidelines contained in the Florida Development Manual: A Guide to Sound Land and Water Management (DEP, 1988) and any subsequent amendments.

3.1 Sediment Erosion Control Measures

Sediment control measures will be installed during construction to prevent runoff-induced migration of sediments. Control measures will include:

- *Silt fence barrier*
- *Soil tracking prevention device*

- *Construction limits will be surveyed and marked by stakes. Highly visible flagging tape will mark the boundaries of sensitive resource areas, waterbodies, wetlands, or areas with special requirements.*
- *Prior to initial site preparation, temporary sediment controls, such as silt fencing will be in installed where needed to protect adjacent sensitive resources (e.g., wetlands, waterbodies, etc.).*
- *Throughout all construction phases, erosion/sediment controls will be routinely inspected and maintained according to manufacturer specifications.*
- *Grading will be performed in a manner to minimize interference with existing natural drainage.*
- *During trenching, temporarily excavated soils will be stored in spoil piles within the construction ROW; the piles will be stabilized using sediment barriers, temporary seeding, mulch, or functional equivalents, where necessary.*
- *Trench dewatering (see Dewatering Plan in Appendix E for details of dewatering methods and BMPs).*
- *When backfilling, verify soils are not compacted greater than pre-construction conditions to allow for successful re-vegetation.*
- *As soon as possible after backfilling, grade the construction ROW to restore pre-construction contours and replace topsoil.*
- *Once all construction and restoration activities have been completed, construction ROW will be reseeded or re-stabilized, and temporary sediment controls will remain until vegetation growth has reached 70% cover or pre-construction vegetation coverage.*
- *No pesticides or herbicides will be used within 100 feet of a waterbody except as allowed by the FDEP.*
- *Remove and properly dispose of all construction debris.*

HDD Specific Measures

All waterbody crossings will be performed using HDD. The CWRC HDD Contingency Plan is provided as Appendix F.

Measures to Contain a Release of Drilling Fluid in a Wetland or Waterbody:

- *Install silt fence barrier around HDD entry and exit work.*
- *Have deployable turbidity booms available onsite during waterbody crossings.*
- *Have access to a wetland scientist within a two-hour drive to assess impacts and make recommendations to mitigate impacts if they occur.*
- *A sample of the drilling slurry will be collected and held for future analysis in the event that an analysis is requested by regulatory agencies.*
- *If an inadvertent release of drilling fluid occurs within a wetland, waterbody or sensitive area, appropriate regulatory agencies will be contacted in accordance with applicable regulations and requirements. Drilling fluid pressure will be reduced and operations will be suspended to assess the extent of the release and to implement necessary corrective actions.*
- *Inspection will be initiated to determine the potential movement of released drilling mud within the wetland or waterbody.*
- *The Project's drilling contractor will determine and implement modifications to the drilling technique or composition of drilling fluid (e.g., thickening of mud by increasing bentonite content) as appropriate to minimize or prevent further releases of drilling mud.*
- *The release will be evaluated to determine if containment structures, such as sediment barriers or erosion controls, are warranted and can effectively contain the release. When making this determination, the potential that placement of containment structures will cause additional adverse environmental impacts will also be considered.*
- *If accessible, the Project contractor will clean up and remove all drilling fluid from the site and dispose of it in accordance with the applicable regulations.*
- *Upon completion of the drilling operations, applicable regulatory agencies will be consulted to determine any final cleanup requirements for the inadvertent release.*

Measures to Contain a Release of Drilling Fluid on Land:

- *If a land release is detected, corrective action will be taken to contain and recover the release.*
- *If public health and safety are threatened by an inadvertent release, drilling operations will be shut down until the threat is effectively addressed or eliminated.*
- *The project's drilling contractor will determine and implement modifications to the drilling technique or composition of drilling fluid (e.g., thickening of mud by increasing bentonite content) as appropriate to minimize or prevent further releases of drilling mud.*

3.2 Stabilization Measures

Describe all temporary and permanent stabilization practices. Stabilization practices include temporary seeding, mulching, permanent seeding, geotextiles, sod stabilization, vegetative buffer strips, protection of trees, vegetative preservations, etc.

Disturbed areas that would allow for offsite discharge will be stabilized within 7 days after construction activity has temporarily or permanently ceased, except when construction will resume within 21 days within that area. Stabilization practices may include seeding, mulching, sodding, or hydroseeding. Soil will be tested to determine the appropriate seed mix and application rates. Temporary access facilities (construction parking or staging areas, equipment laydown areas) will be surfaced with aggregate to reduce sediment tracking.

Permanent stabilization measures consist of restoring the construction ROW and other workspaces to preconstruction contours and preconstruction vegetation cover (through seeding in uplands and natural revegetation in wetlands).

3.3 Structural Controls

Describe all structural controls to be implemented to divert stormwater flow from exposed soils and structural practices to store flows, retain sediment on-site or in any other way limit stormwater runoff. These controls include silt fences, earth dikes, diversions, swales, sediment traps, check dams, subsurface drains, pipe slope drains, level spreaders, storm drain inlet protection, rock outlet protection, reinforced soil retaining systems, gabions, coagulating agents and temporary or permanent sediment basins.

Silt fence barriers will be used as a structural control to prevent violations of water quality or offsite sedimentation, divert flows from exposed soils, store flows, retain sediment on site, or otherwise limit runoff and the discharge of pollutants from exposed areas of the site. See Appendix D for Silt Fence Barrier BMP, including installation and maintenance details.

Describe all sediment basins to be implemented for areas that will disturb 10 or more acres at one time. The sediment basins (or an equivalent alternative) should be able to provide 3,600 cubic feet of storage for each acre drained. Temporary sediment basins (or an equivalent alternative) are recommended for drainage areas under 10 acres.

Stormwater basins will not be used. Construction of the pipeline will occur in discrete sections; there will not be 10 acres of disturbed area at any one time.

Describe all permanent stormwater management controls such as, but not limited to, detention or retention systems or vegetated swales that will be installed during the construction process.

Permanent stormwater controls are not proposed.

4.0 Potential Pollutants

Describe in detail controls for the following potential pollutants:	
Waste disposal, this may include construction debris, chemicals, litter, and sanitary wastes:	*The contractor will maintain regulated waste disposal procedures associated with the construction activities. All construction materials and debris will be placed in a dumpster and hauled off-site to a landfill or other regulated disposal site. No materials may be buried on-site.* *<u>Sanitary Waste</u>* *A licensed sanitary waste company will collect all sanitary waste from potable units within the regulated time frame as required by local regulations. Port-o-lets will be placed away from storm sewer systems, storm inlets, surface waters, and wetlands.* *<u>Equipment and Concrete Truck Wash Areas</u>* *Large equipment and concrete trucks will be allowed to discharge wash water in the off-site laydown yard in such a manner that prevents contact with stormwater discharged from the site. A proper lined concrete washout structure will be used to collect concrete wash water. A small, vegetated berm will be constructed to contain other types of equipment wash waters. Materials collected in such areas will be disposed of in an acceptable manner.*
Offsite vehicle tracking from construction entrances/exits:	*The vehicle tracking of sediment will be reduced by installing stabilized construction road aprons. Public roads and construction access roads will be routinely inspected for excess sediment tracking, and if necessary, will be cleaned to remove excess mud, dirt, or rock tracked from the construction site.*
The proper application rates of all fertilizers, herbicides and pesticides used at the construction site:	*In the event fertilizers, herbicides and pesticides are required on the construction side, they will be applied by a State licensed applicator. Fertilizers are only to be applied at the minimum rate recommended by the manufacturer to establish and maintain vegetation.*

The storage, application, generation and migration of all toxic substances:	*No toxic substances are anticipated to be used during construction. If any toxic substances will be used, then they will be stored and handled according to their Safety Data Sheets (SDS). All toxic substance containers will be tightly sealed and properly stored to prevent leaks or spills. Storage will be in a rain protected facility. Unused paints, cleaners, or other toxic substance will be disposed of according to local and/or state regulations, or manufacturer's recommendations. All construction personnel will be instructed regarding the correct procedure for hazardous waste handling and disposal. The Construction Site Manager will be responsible for overall compliance with these procedures.*
Other:	*Test for levels of impairment performed as required by FDEP, DERM and SFWMD requirements. Analytical results shall be reviewed for compliance with these requirements. Copies of the results to be kept with the stormwater management plan.* *Section 4.0 of the SWPPP will be revised in the even that additional potential pollutants are brought to site.*

5.0 Inspections & Maintenance

Provide a detailed description of the maintenance plan for all structural and non-structural controls to assure that they remain in good and effective operating condition.

The inspection and maintenance practices that will be used to maintain erosion and sediment controls at the project area are listed below. The Stormwater Management System Weekly Inspection Form, included as Appendix G of this plan, addresses items for weekly inspection. Documentation will be retained onsite for the duration of the construction project.

- *Sediment controls will be installed at all locations as shown on SWPPP Plans. These control measures will be inspected and maintained in good working condition.*
- *All control measures will be inspected at least once each week and following any storm event of 0.50 inch or greater.*
- *All control measures will be maintained in good working order; if a repair is necessary, it will be initiated within 24 hours of report and completed within 7 days.*
- *Captured sediment will be removed from sediment barriers when it has reached one-third the height of the barrier.*
- *Silt fence will be inspected for depth of sediment, tears, to verify the fabric is securely attached to the fence posts, and to see that the fence posts are firmly trenched in the ground.*
- *Sod, temporary and permanent seeding, and plantings will be inspected for bare spots, washouts, and unhealthy growth.*
- *The Construction Site Manager will designate one or more individuals, as needed, to be responsible for inspections, maintenance, repair, and reporting activities. The selected personnel will receive instruction from the Site Manager or qualified designee.*

A signed copy of this Plan and any supporting materials must be maintained at the Project site from the date of project initiation to the date of final stabilization. All records and supporting documents will be compiled in an orderly manner and maintained for a period of three years following final site stabilization.

The generation of reports, as part of the construction process and inspection or amendment procedures, provides accurate records that can be used to evaluate the effectiveness of this Plan, and document compliance with the regulatory requirements. Changes in design or construction of the stormwater management system must be documented and included with the Plan to facilitate Plan review or evaluation

Inspections: Describe the inspection and inspection documentation procedures, as required by Part V.D.4. of the permit. Inspections must occur at least once a week and within 24 hours of the end of a storm event that is 0.50 inches or greater (see attached form).

- *The Environmental Inspector will conduct inspections of BMPs including sediment erosion control measures at least once each week and following any storm event of 0.50 inch or greater.*
- *Inspections will be recorded on inspection log (Appendix G) that will be certified by responsible authority.*
- *Inspection logs will remain onsite through construction for review by FPL or FDEP.*

Identify and describe all sources of non-stormwater discharges as allowed in Part IV.A.3. of the permit. Flows from fire-fighting activities do not have to be listed or described.

It is expected that the following non-stormwater discharges will occur onsite during the construction period:

- *Water pipeline flushings.*
- *Pavement wash waters (where no spills or leaks of toxic or hazardous materials have occurred).*
- *Vehicle and building wash waters (where no detergents have been used).*
- *Water for dust control.*
- *Firefighting waters; fire hydrant flushings.*
- *Vegetation watering; irrigation drainage.*
- *Potable water discharges.*
- *Air conditioning condensate.*

***Waters from hydrostatic testing of new water lines, gas lines, and tank flushings will be discharged to the stormwater detention pond. During these activities the storm water pond level will be monitored to assure there is no overtopping of the pond embankment.*

Appendix A. Florida Generic Permit

Appendix B. Notice of Intent

Appendix C. Site Map

Appendix D. Best Management Practice Details

Appendix E. Dewatering Plan for Giannetti Corporation FPL CWRC Project – Reclaimed Water Pipeline

Note: Submittal #1 included. To be amended as additional submittals are issued.

Appendix F. HDD Contingency Plan

Appendix G. FDEP Inspection Forms

Appendix H. Corrective Actions Log

Appendix I. Training Log

Appendix J. Record of SWPPP Revisions

Appendix K. Delegation of Authority

ATTACHMENT F

Rossy Guima

Subject: FW: Proposed CWRC Pipeline Dewatering Connection
Attachments: Dewatering Connection at SW 97.pdf; Landfill GW Quality Data.pdf

From: Ferguson, James (WASD) <James.Ferguson@miamidade.gov>
Sent: Tuesday, October 24, 2023 5:00 PM
To: XAVIER, David <David.XAVIER@fpl.com>
Cc: Wong, John (DSWM) <John.Wong@miamidade.gov>; Kelapanda, Achaya (DSWM) <Achaya.Kelapanda@miamidade.gov>; Pou, Leo A (WASD) <Leo.Pou@miamidade.gov>; Myers, Wayne (WASD) <Wayne.Myers@miamidade.gov>
Subject: FW: Proposed CWRC Pipeline Dewatering Connection

David,

It is acceptable to inform DERM of your intention to dispose of groundwater at the SDWWTP via an indirect connection to the 54-inch FM on SW 97 Avenue.

I have copied Solid Waste Department on this email. As you know your point of connection is also used for discharge of leachate and domestic wastewater by the South Dade Landfill, therefore the dewatering operations cannot have a harmful effect on the operation of the Landfill. The County reserves the right to prohibit dewatering into the WASD system if this occurs. WASD may also ask you to cease dewatering operations due to excessive rainfall and flows at the SDWWTP. I am hoping this is minimized by performing this operation in the dry season, during daytime hours only, and limiting the dewatering flowrate as much as possible. Thanks.

James B. Ferguson, P.E.
Assistant Director
Miami-Dade Water and Sewer Department
3071 SW 38 Avenue, Miami, FL 33146
Phone: 786-552-8756
Cell: 305-613-2249
www.miamidade.gov/water
Connect With Us on Facebook | Twitter | Instagram | YouTube

From: XAVIER, David <David.XAVIER@fpl.com>
Sent: Monday, October 23, 2023 4:19 PM
To: Ferguson, James (WASD) <James.Ferguson@miamidade.gov>
Subject: RE: Proposed CWRC Pipeline Dewatering Connection

EMAIL RECEIVED FROM EXTERNAL SOURCE

Hello Jim,

As previously mentioned, we submitted a permit application to DERM for groundwater dewatering for the CWRC reclaimed waterline along SW 97th Ave. and have received an RFI response from DERM. Due to the proximity of the work to the SDWWTP and the landfill, DERM suggested in the RFI that we consider discharging the dewatering effluent

to the WWTP either directly via piping or indirectly via containing and trucking, both of which would require approval from WASD and DERM, as applicable.

Based on the discussions we have had with WASD, we would like to pursue this suggestion by connecting the discharge of the groundwater pumps to the existing 8" forcemain as shown in the attached. We propose to cut an 8" X 8" tee into the existing forcemain and install an 8" check valve upstream of the tee to ensure the groundwater flows into the downstream 54" FM. We will also include a check valve on the dewatering discharge piping to ensure flow from the forcemain does not flow back towards the dewatering pumps.

We have estimated that the groundwater flowrate to the WWTP will be approximately 500 gpm, although this may vary slightly based on the porosity of the limerock from area to area. Flowrates as high at 900 gpm may be realized for short durations, such as 1 or 2 days, at three separate locations where the CWRC pipeline must be installed under existing utility lines, resulting in more dewatering.

We are attaching the expected quality of the groundwater to be conveyed to the SDWWTP. This is the same data previously provided from two monitoring well clusters, S1 and S21, that are located directly within the pipeline corridor where the dewatering will take place. These well clusters each have 3 zones that are sampled. At well S1 groundwater samples are taken at 10', 15 and 60' below ground. At well S21, groundwater samples are taken at 15', 30' and 60' below ground. Since our excavation will be a maximum of 8' deep, the most applicable water quality would be from the 10' and 15' depths at S1 and the 15' depth at S21. Parameters tested include Turbidity, DO, conductivity, temperature, pH, color, TDS, NO3-N, chloride, NH3-N, metals and VOCs. The attached includes sampling data from 2020, 2021 and 2022.

Our current schedule is to install the piping along SW 97th Ave (and perform dewatering) in mid to late November 2023 and complete this work by early to mid-January 2024. This timing coincides with the dry season as previously requested. Dewatering will only occur during daytime hours (7AM to 5 PM) for 5 to 6 days per week.

Please review our proposal and let us know if it is acceptable to inform DERM of our intention to dispose of the groundwater at the SDWWTP via an indirect connection to the 54" FM.

Thanks,

David Xavier, P.E.
Ph. 772-631-6686

STATE OF FLORIDA

DEPARTMENT

OF

ENVIRONMENTAL PROTECTION

Conditions of Certification

Florida Power & Light Company

Turkey Point Clean Energy Center
Units 3 and 4 Nuclear Power Plant
Unit 5 Combined Cycle Plant

PA 03-45G

1/24/2022

Table of Contents

SECTION A: GENERAL CONDITIONS **1**

I. SCOPE **1**

II. APPLICABLE DEPARTMENT RULES **3**

III. REVISIONS TO DEPARTMENT STATUTES AND RULES **4**

IV. DEFINITIONS **5**

V. FEDERALLY DELEGATED OR APPROVED PERMIT PROGRAMS **6**

VI. DESIGN AND PERFORMANCE CRITERIA **6**

VII. NOTIFICATION **7**

VIII. EMERGENCY CONDITION NOTIFICATION AND RESTORATION **8**

IX. CONSTRUCTION PRACTICES **8**

A. Local Building Codes 8

B. Open Burning 8

C. Vegetation 8

D. Existing Underground Utilities 8

E. Electric and Magnetic Fields (EMF) 9

F. Existing Wells 9

G. Abandonment of Existing Septic Tanks 9

H. Sanitary Wastes 9

X. RIGHT OF ENTRY **9**

XI. DISPUTE RESOLUTION **10**

A. General 10

B. Modifications 10

C. Post-certification Submittals 10

XII. SEVERABILITY **10**

XIII. ENFORCEMENT **10**

XIV. REVOCATION OR SUSPENSION **11**

XV. REGULATORY COMPLIANCE **11**

XVI. CIVIL AND CRIMINAL LIABILITY **11**

XVII. USE OF STATE LANDS **12**

XVIII. PROCEDURAL RIGHTS **13**

XIX. AGENCY ADDRESSES FOR POST-CERTIFICATION SUBMITTALS AND NOTICES 13

XX. PROFESSIONAL CERTIFICATION 14

XXI. PROCEDURES FOR POST-CERTIFICATION SUBMITTALS 14

A. Purpose of Submittals 14

B. Filings 14

C. Completeness 15

D. Interagency Meetings 15

E. Determination of Compliance 15

F. Commencement of Construction 15

G. Revisions to Design Previously Reviewed for Compliance 16

XXII. POST-CERTIFICATION SUBMITTAL REQUIREMENTS SUMMARY 16

XXIII. POST-CERTIFICATION AMENDMENTS 16

XXIV. MODIFICATION OF CERTIFICATION 17

XXV. COASTAL ZONE CONSISTENCY 18

XXVI. WATER QUALITY CERTIFICATION 18

XXVII. TRANSFER OF CERTIFICATION 18

XXVIII. LABORATORIES AND QUALITY ASSURANCE 19

XXIX. ENVIRONMENTAL RESOURCES 19

A. General 19

B. Surface Water Management Systems 20

C. Wetland and Other Surface Water Impacts 22

XXX. THIRD PARTY IMPACTS 22

XXXI. FACILITY OPERATION 22

XXXII. RECORDS MAINTAINED AT THE FACILITY 22

XXXIII. WATER DISCHARGES 23

XXXIV. SOLID AND HAZARDOUS WASTE 24

A. Solid Waste 24

B. Hazardous Waste, Used Oil, Petroleum Contact Water, and Spent Mercury 24

C. Hazardous Substance Release Notification 24

D. Contaminated Site Cleanup 25

XXXVI. STORAGE TANK SYSTEMS 25
A. Incident Notification Requirements. 25
B. Discharge Reporting Requirements 25
C. Discharge Cleanup 25
D. Out of Service and Closure Requirements 26
SECTION B. SPECIFIC CONDITIONS 27
I. DEPARTMENT OF ENVIRONMENTAL PROTECTION 27
A. Radiological – Specific to Units 3 & 4 27
B. CWRC Solid Waste 28
C. CWRC HDD Requirements 28
D. Screening 30
II. DEPARTMENT OF TRANSPORTATION 30
A. Access Management to the State Highway System: 30
B. Overweight or Overdimensional Loads: 30
C. Use of State of Florida Right of Way or Transportation Facilities: 30
D. Standards: 30
E. Drainage: 30
F. Use of Air Space: 31
G. Level of Service on State Roadway Facilities: 31
H. Best Management Practices 31
I. Railroad Spur 32
III. SOUTH FLORIDA WATER MANAGEMENT DISTRICT 33
A. General 33
B. Water Use Authorizations 34
C. Site Specific Design Authorizations 36
D. Right-of-Way 39
1. General 39
2. Access 40
IV. FLORIDA FISH AND WILDLIFE CONSERVATION COMMISSION 41
A. General Listed Species Surveys 41
B. Endangered and Threatened Species 42
C. Gopher Tortoise 42
D. Cooling Canal System Crocodile Population Protection 42

E. Horizontal Directional Drilling Manatee Protection Conservation Measures 43

V. DEPARTMENT OF STATE – DIVISION OF HISTORICAL RESOURCES 44

VI. DEPARTMENT OF AGRICULTURE AND CONSUMER SERVICES 45

VII. MIAMI-DADE COUNTY 45

A. General 45

B. Unit 5 Expansion Project 45

C. Review and Monitoring of Additional Freshening Activities 48

D. CWRC Construction and Operation 48

E. Flood Control Protection 49

F. Noise 49

VIII. EMERGENCY MANAGEMENT 50

A. Emergency Plan – Units 3 & 4 50

B. Comprehensive Hurricane Preparation and Recovery Plan 50

IX. DEPARTMENT OF HEALTH 50

A. Monitoring – Units 3 & 4 50

B. Interagency Agreement – Units 3 & 4 50

X. UNITS 3 & 4 ADDITIONAL MONITORING 50

A. Biscayne Bay Surface Water Monitoring 50

B. Surface Water, Groundwater, and Ecological Monitoring 51

C. Cooling Canal System Floridan Production Well Monitoring 53

HISTORY 53

ATTACHMENTS

Attachment A ..... Certified Site/Facilities Delineation Map(s)

Attachment B ..... Surface Water Management System Plan(s)

Attachment C ..... Mitigation Plan(s)

Attachment D ..... Horizontal Directional Drilling Contingency Plan

EXHIBITS

Exhibit A ..... Emergency Response Capability Agreement

SECTION A: GENERAL CONDITIONS

These General Conditions shall be applicable to all areas of the certified site. Compliance with the General Conditions shall be the joint responsibility of Florida Power & Light Company (FPL) Turkey Point Clean Energy Center Nuclear Plant (Units 3 & 4) and Fossil Fuel Plant (Unit 5). Any violation of a General Condition shall be a violation by FPL.

I. SCOPE

A. Pursuant to the Florida Electrical Power Plant Siting Act (PPSA), Sections 403.501-.518, Florida Statutes (F.S.), and Chapter 62-17, Florida Administrative Code (F.A.C.), this Certification is issued to FPL as owner/operator and Licensee of the Turkey Point Clean Energy Center Units 3-5. The Department recognizes that Nuclear Units 3 & 4 and Fossil Unit 5 are under the control of different divisions of FPL. Unless otherwise specified, FPL shall be responsible for the compliance with the conditions herein. Violation of any conditions specific to Units 3, 4, or 5 shall solely affect the license of the responsible generating units. Subject to the requirements contained in these Conditions of Certification (Conditions), FPL will construct, operate, and maintain a nominal 1,150 megawatt (MW) facility (Unit 5) consisting of four 170 MW natural gas fired combustion turbines with light oil as back-up fuel, four heat recovery steam generators and one 470 MW steam turbine, and one nuclear plant consisting of two nominal 800 MW pressurized water reactors (Units 3 and 4), and Associated facilities as described in the Site Certification Application(s) (SCA). The electric generating units are located on an existing 11,000-acre site at 9700 S.W. 344 Street, Homestead, in Miami-Dade County, Florida. Unit 5 is located on approximately 90 acres and Units 3 & 4 are located on approximately 30 acres of the existing site. The UTM coordinates are: Zone 17, 567.2 km East and 2813.2 km North; Latitude: 25° 26' 09" North and Longitude: 80° 19' 52" West.

B. The certified facility includes but is not limited to the following major associated facilities:

- Unit 5 – Fossil Plant
    - Four combustion turbines
    - Four heat recovery steam generators
    - One steam turbine/electric generator to create four-on-one combined cycle unit
    - Emergency Diesel engines, generator engines, and emergency generators
    - Diesel Fire pump
    - Switchyard/substation
    - Stormwater pond
    - Cooling tower
    - Oil tanks
    - Demineralized water treatment plant
    - Administrative and storage buildings
    - Storage tanks
    - Reclaimed water treatment facility (Clean Water Recovery Center – CWRC)
    - Reclaimed waterline
    - Floridan production wells (PW-1 through PW-4)

- Units 3 & 4 – Nuclear Plant
    - Containment building
        - Two pressurized water reactors
        - Steam generators
        - Reactor coolant pumps
    - Turbine Generator building
    - Auxiliary building
        - Waste management facilities
        - Safety components
    - Fuel handling building
        - Spent fuel storage
        - New fuel storage
    - Administrative and storage buildings
    - Switchyard
    - Demineralized water treatment plant
    - Floridan production wells F-1 through F-7

C. These Conditions, unless specifically amended or modified, are binding upon the Licensee and shall apply to the construction, operation, and maintenance of the certified facility. If a conflict should occur between the design criteria of this certified facility and the Conditions, the Conditions shall prevail unless amended or modified. In any conflict between any of these Conditions, the more specific condition governs.

D. Within 60 days after completion of construction of the electrical power plant as defined by Section 403.503(14), F.S., but excluding off-site linear and non-linear Associated facilities, the Licensee shall provide to the Department in .pdf format: a survey map signed by a professional land surveyor, or acceptable equivalent documentation such as an official legal description, delineating the boundaries of the site as defined by Section 403.503(28), F.S., and an aerial photograph delineating the boundaries of the site. The survey map and aerial photograph shall be labelled as the "Site Delineation Map" and attached hereto as part of Attachment A.

E. The Licensee shall notify the Department of any change to the site boundary depicted in the Site Delineation Map in Attachment A. The notification shall be accompanied by an updated survey map or legal description and aerial photograph delineating the new boundaries of the site for review by the Department. Such changes may constitute a modification and may require additional land use and zoning reviews by the local government. If a modification is required, it will be processed pursuant to Section 403.516, F.S.

F. If both certified and uncertified facilities lie within the boundaries of the site, the Licensee shall also comply with the requirements of this paragraph. Within 60 days after completion of construction of the plant and on-site associated facilities, but excluding off-site linear and non-linear associated facilities, the Licensee shall provide to the Department in .pdf format acceptable documentation identifying the certified and non-certified facilities within the site such as an aerial photograph. Certified facilities identified within the site shall include both the certified electrical power plant's generating and its on-site certified associated facilities (including on-site linear facilities) as defined by Section 403.503(7), F.S. The document shall be

labelled as the "Certified Facilities Identification Map" and attached hereto as part of Attachment A.

G. Within 120 days after completion of construction of any certified off-site non-linear associated facilities, the Licensee shall provide to the Department in .pdf format; a survey map signed by a professional land surveyor, or acceptable equivalent documentation such as an official legal description, delineating the site boundaries for each off-site non-linear associated facility. The survey map or other documents shall be labelled as the "Delineation of the Boundaries of the Certified Off-Site Non-Linear Facilities" and attached hereto as part of Attachment A.

H. Within 180 days after completion of construction of any new off-site linear associated facilities, as defined in Section 403.503(7), F.S., the Licensee shall provide; an aerial photograph or map at a scale of at least 1:400, or acceptable equivalent documentation such as an official legal description or survey map signed by a professional land surveyor, delineating the boundaries of the certified site for the linear associated facilities, following acquisition of all necessary property interests and the corridor narrowing as described in Section 403.503(11), F.S. These documents shall be labelled as the "Delineation of Certified Off-Site Linear Facilities" and attached as part of Attachment A.

I. Following any post-certification approvals that require a change to the boundaries of the certified facilities depicted in the Delineation of Certified Off-Site Linear Facilities in Attachment A, the Licensee shall submit an updated aerial photograph, map, survey map, or legal description.

[Sections 403.511, 403.5113, F.S.; Rules 62-4.160(1), (2), and 62-17.205(2), F.A.C.]

II. APPLICABLE DEPARTMENT RULES

The construction, operation, and maintenance of the certified facility shall be in accordance with all applicable non-procedural provisions of Florida Statutes and Florida Administrative Code, including, but not limited to, the applicable non-procedural portions of the following Department regulations, except to the extent a variance, exception, exemption, or other relief is granted in the final order of certification or in a subsequent modification to the Conditions, or under a federal permit, or as otherwise provided under Chapter 403, F.S.:

Florida Administrative Code:
18-2 (Management of Uplands Vested in the Board of Trustees)
18-14 (Administrative Fines for Damaging State Lands)
18-20 (Florida Aquatic Preserves)
18-21 (Sovereignty Submerged Lands Management)
62-4 (Permits)
62-6 (Standards for Onsite Sewage Treatment And Disposal Systems)
62-17 (Electrical Power Plant Siting)
62-40 (Water Resource Implementation Rule)
62-150 (Hazardous Substance Release Notification)
62-160 (Quality Assurance)
62-204 (Air Pollution Control-General Provisions)
62-210 (Stationary Sources-General Requirements)
62-212 (Stationary Sources-Preconstruction Review)

62-213 (Operation Permits for Major Sources of Air Pollution)
62-256 (Open Burning)
62-296 (Stationary Sources-Emission Standards)
62-297 (Stationary Sources-Emission Monitoring)
62-302 (Surface Water Quality Standards)
62-303 (Identification of Impaired Surface Waters)
62-304 (Total Maximum Daily Loads)
62-330 (Environmental Resource Permitting)
62-340 (Delineation of the Landward Extent of Wetlands and Surface Waters)
62-342 (Mitigation Banks)
62-345 (Uniform Mitigation Assessment Method)
62-520 (Ground Water Classes, Standards, and Exemptions)
62-528 (Underground Injection Control)
62-531 (Water Well Contractor Licensing Requirements)
62-532 (Water Well Permitting and Construction Requirements)
62-550 (Drinking Water Standards, Monitoring, and Reporting)
62-555 (Permitting, Construction, Operation, and Maintenance of Public Water Systems)
62-560 (Requirements for Public Water Systems That Are Out of Compliance)
62-600 (Domestic Wastewater Facilities)
62-604 (Collection Systems and Transmission Facilities)
62-610 (Reuse of Reclaimed Water and Land Application)
62-620 (Wastewater Facilities and Activities Permitting)
62-621 (Generic Permits)
62-650 (Water Quality Based Effluent Limitations)
62-660 (Industrial Wastewater Facilities)
62-699 (Treatment Plan Classification and Staffing)
62-701 (Solid Waste Management Facilities)
62-709 (Criteria for Organics Processing and Recycling Facilities)
62-710 (Used Oil Management)
62-730 (Hazardous Waste)
62-737 (The Management of Spent Mercury-Containing Lamps and Devices Destined for Recycling)
62-740 (Petroleum Contact Water)
62-761 (Underground Storage Tank Systems)
62-762 (Aboveground Storage Tank Systems)
62-769 (Abandoned Tank Restoration Program)
62-777 (Contaminant Cleanup Target Levels)
62-780 (Contaminated Site Cleanup Criteria)
62-814 (Electric and Magnetic Fields)

III. REVISIONS TO DEPARTMENT STATUTES AND RULES

A. The Licensee shall comply with rules adopted by the Department subsequent to the issuance of the Certification under the PPSA which prescribe new or stricter criteria, to the extent that the rules are applicable to electrical power plants. Except when a variance, exception,

exemption, or other relief has been granted, subsequently adopted Department rules which prescribe new or stricter criteria shall operate as automatic modifications to this Certification.

B. Upon written notification to the Department, the Licensee may choose to operate the certified electrical power plant in compliance with any rule subsequently adopted by the Department which prescribes criteria more lenient than the criteria required by the terms and conditions in the Certification which are not site-specific.

[Sections 403.511(5)(a) and (b), F.S.; Rule 62-4.160(10), F.A.C.]

IV. DEFINITIONS

Unless otherwise indicated herein, the meaning of terms used herein shall be governed by the applicable definitions contained in Chapters 253, 373, 379, and 403, F.S., and any regulation adopted pursuant thereto. In the event of any dispute over the meaning of a term used in these Conditions which is not defined in such statutes or regulations, such dispute shall be resolved by reference to the most relevant definitions contained in any other state or federal statute or regulation, or in the alternative, by the use of the commonly accepted meaning. As used herein, the following shall apply:

A. "Application" or "SCA" is defined in Section 403.503(6), F.S. For purposes of this license, "Application" shall also include materials submitted for post-certification amendments and petitions for modification to the Conditions of Certification, as well as supplemental applications.

B. "Associated facility" or "associated facilities" as defined by Section 403.503(7), F.S.

C. "Certified facility" or "certified facilities" means the certified electrical power generation facilities and all certified on- or off-site associated facilities and structures identified or described in the Application, in the final order of certification, or in a post-certification amendment or modification.

D. "DEO" means the Florida Department of Economic Opportunity.

E. "DEM" shall mean the Florida Division of Emergency Management.

F. "DEP" or "Department" means the Florida Department of Environmental Protection.

G. "DERM" shall mean the Department of Regulatory and Economic Resources Division of Environmental Resources Management of Miami-Dade County, Florida.

G. "DHR" means the Florida Department of State, Division of Historical Resources.

H. "DOT" means the Florida Department of Transportation.

I. "Emergency conditions" or "Emergency reporting" means urgent circumstances involving potential adverse consequences to human life or property as a result of weather conditions or other calamity.

J. "Feasible" or "Practicable" means reasonably achievable considering a balance of land use impacts, environmental impacts, engineering constraints, and costs.

K. "FWC" means the Florida Fish and Wildlife Conservation Commission.

L. "Licensee" means an applicant that has obtained a certification order for the subject project.

M. "NED, NWD, CD, SED, SWD, SD" shall mean the Northeast, Northwest, Central, Southeast, Southwest, and South DEP district offices, respectively.

N. "NRC" shall mean the United States Nuclear Regulatory Commission

O. "NWF, SR, SJR, SWF, or SFWMD" means the Northwest Florida, Suwannee River, St. Johns River, Southwest Florida, or South Florida Water Management District, respectively.

P. "Post-certification submittal" shall mean a submittal made by the Licensee pursuant to a Condition of certification.

Q. "Right-of-Way" or "ROW" is defined in Section 403.503(27), F.S.

R. "SCA" means the Site certification Application (i.e., the Application(s))

S. "SCO" means the Department's Siting Coordination Office.

T. "Site" is defined in Section 403.503(28), F.S.

U. "State Water Quality Standards" shall mean the numerical and narrative criteria applied to specific water uses or classifications set forth in Chapters 62-302 and 62-520, F.A.C.

V. "Surface Water Management System", "SWMS", or "System" means a stormwater management system, dam, impoundment, reservoir, appurtenant work, or works, or any combination thereof. The terms "surface water management system", "SWMS", or "system" include areas of dredging or filling, as those terms are defined in Sections 373.403(13) and (14), F.S.

W. "WASD" shall mean the Water and Sewer Department of Miami-Dade County, Florida.

X. "Wetlands" shall mean those areas meeting the definition set forth in Section 373.019(27), F.S., as delineated pursuant to Chapter 62-340, F.A.C.

V. FEDERALLY DELEGATED OR APPROVED PERMIT PROGRAMS

Subject to the Conditions set forth herein, this certification shall constitute the sole license of the state and any agency as to the approval of the location of the site and any Associated facility and the construction and operation of the electrical power plant, except for the issuance of Department Licenses required under any federally delegated or approved permit program. This certification is not a waiver of any other Department approval that may be required under federally delegated or approved programs. In the event of a conflict between the certification process and federally required procedures, the applicable federal requirements shall control.

[Sections 403.5055, 403.508(8), and 403.511(1), F.S.]

VI. DESIGN AND PERFORMANCE CRITERIA

Certification, including these conditions, is predicated upon preliminary designs, concepts, and performance criteria described in the SCA or in testimony and exhibits in support of certification. The final engineering design of the certified facilities will be consistent and in

substantial compliance with the preliminary information described in the SCA or as explained at the certification hearing (if any). Conformance to those criteria, unless specifically modified in accordance with Sections 403.516, F.S., and Rule 62-17.211, F.A.C., is binding upon the Licensee in the design, construction, operation, and maintenance of the certified facility.

[Sections 403.511(2)(a), 403.516, F.S.; Rules 62-4.160(2), and 62-17.211, F.A.C.]

VII. NOTIFICATION

A. If, for any reason, the Licensee does not comply with or will be unable to comply with any condition or limitation specified in this License, the Licensee shall provide the DEP District Office with the following information:

1. A description of and cause of noncompliance; and

2. The period of noncompliance, including dates and times; or, if not corrected, the anticipated time the noncompliance is expected to continue, and steps being taken to reduce, eliminate, and prevent recurrence of the noncompliance. The Licensee shall be responsible for any and all damages which may result and may be subject to enforcement action by the Department for penalties or for revocation of this certification.

3. All notifications which are made in writing shall additionally be provided to the SCO via email to SCO@dep.state.fl.us.

[Rule 62-4.160(8), F.A.C.]

B. The Licensee shall promptly notify the SCO in writing (email acceptable) of any previously submitted information concerning the certified facility that is later discovered to be inaccurate.

[Rule 62-4.160(15), F.A.C.]

C. Any owner or operator of a facility who has knowledge of any incident reportable to the State Watch Office regarding a certified facility shall notify the State Watch Office at (800) 320-0519 as soon as possible, but not later than 24 hours after discovery of the incident.

D. Any owner or operator of a facility who has knowledge of any reportable pollution release shall submit a Public Notice of Pollution by following the instructions at https://prodenv.dep.state.fl.us/DepPNP/user/pnpRequest, as soon as possible, but not later than 24 hours after discovery of the release.

[Section 403.077, F.S.]

E. Within 60 days after certification of a linear Associated facility the Licensee shall file a notice of the certified route with the Department's clerk (Office of General Counsel) and the clerk of the circuit court for each county through which the corridor will pass.

The notice shall consist of maps or aerial photographs in the scale of 1:24,000 which clearly show the location of the certified route and shall state that the certification of the corridor will result in the acquisition of rights-of-way within the corridor.

[Section 403.5112, F.S.]

VIII. EMERGENCY CONDITION NOTIFICATION AND RESTORATION

If the Licensee is temporarily unable to comply with any of the conditions of the License due to breakdown of equipment or destruction by hazard of fire, wind, or other cause, such as an emergency as defined by Sections 252.34(4), (7), (8), or (10), F.S., the Licensee shall immediately notify the Department. Notification shall include pertinent information as to the cause of the problem, and what steps are being taken to correct the problem and to prevent its recurrence, and where applicable, the owner's intent toward reconstruction of destroyed facilities. Such notification does not release the Licensee from any liability for failure to comply with Department rules. Any exceedances and/or violations recorded during emergency conditions shall be reported as such, but the Department acknowledges that it intends to use its enforcement discretion during this timeframe. This acknowledgement by the Department does not constitute a waiver or variance from any requirements of any federal permit. Relief from any federal agency must be separately sought.

[Rule 62-4.130, F.A.C.]

IX. CONSTRUCTION PRACTICES

A. Local Building Codes

Subject to the conditions set forth herein, this certification constitutes the sole license of the state and any agency as to the approval of the location of the site and any Associated facility and the construction and operation of any certified facility. The Licensee is not required to obtain building permits for certified facilities. However, this certification shall not affect in any way the right of any local government to charge appropriate fees or require that construction of structures used by the electrical power plant that are not an integral part of a generating plant, substation, or control center (such as, office buildings, warehouses, garages, machine shops, and recreational buildings) be in compliance with applicable building construction codes.

[Section 403.511(4), F.S.]

B. Open Burning

Prior to open burning in connection with land clearing, the Licensee shall seek authorization from the Florida Forest Service in accordance with the requirements of Chapters 62-256 and 5I-2, F.A.C.

[Chapters 5I-2 and 62-256, F.A.C.]

C. Vegetation

For areas located in any Florida Department of Transportation (DOT) ROW, Chapter 3.18 of the 2017 Florida DOT *Utility Accommodation Manual* available on the DOT website at https://www.fdot.gov/programmanagement/utilities/default.shtm shall serve as guidelines for best management practices.

D. Existing Underground Utilities

The Licensee must follow all applicable portions of the Underground Facility Damage Prevention and Safety Act, Chapter 556, F.S. The Licensee shall provide the affected local government and the SCO with copies of valid tickets obtained from Sunshine State One

Call of Florida upon request. Tickets shall be available for request until the underground work is completed for the affected area.

[Chapter 556, F.S.]

E. Electric and Magnetic Fields (EMF)

Any transmission lines and electrical substations that are associated facilities shall comply with the applicable requirements of Chapter 62-814, F.A.C.

[Chapter 62-814, F.A.C.]

F. Existing Wells

Any existing wells to be impacted in the path of construction of certified facilities that will no longer be used shall be abandoned by a licensed well contractor. All abandoned wells shall be filled and sealed in accordance with Rule 62-532.500(5), F.A.C., or with the rules of the authorizing agency, or consistent with these Conditions.

[Rules 62-532.400 and 62-532.500(5), F.A.C.]

G. Abandonment of Existing Septic Tanks

Any existing septic tanks that will no longer be used shall be abandoned in accordance with Rule 64E-6.011, F.A.C., unless these Conditions provide otherwise.

[Chapter 64E-6, F.A.C.]

H. Sanitary Wastes

Disposal of sanitary wastes from construction toilet facilities shall be in accordance with applicable regulations of the Department.

[Rule 62-6.0101, F.A.C.]

X. RIGHT OF ENTRY

A. Upon presentation of credentials or other documents as may be required by law, the Licensee shall allow authorized representatives of the Department or other agencies with jurisdiction over a portion of the certified facility, any authorized off-site mitigation/compensation area or Associated facility:

1. At reasonable times, to enter upon the certified facility in order to monitor activities within their respective jurisdictions for purposes of assessing compliance with this certification; or

2. During business hours, to enter the Licensee's premises in which records are required to be kept under this certification; and to have access to and copy any records required to be kept under this certification.

B. When requested by the Department, on its own behalf or on behalf of another agency with regulatory jurisdiction, the Licensee shall within 10 working days, or such longer period as may be mutually agreed upon by the Department and the Licensee, furnish any information required by law, which is needed to determine compliance with the certification.

[Rules 62-4.160(7)(a) and 62-4.160(15), F.A.C.]

XI. DISPUTE RESOLUTION

A. General

If a situation arises in which mutual agreement cannot be reached between the Department and the Licensee, and/or, an agency with substantive regulatory jurisdiction over a matter, the Department may act as a facilitator in an attempt to resolve the issue. If the dispute is not resolved informally in this manner, Licensee may request one or more meetings in which both Licensee and the agency with substantive regulatory jurisdiction over the matter can participate and attempt to resolve the issue informally. If, after such meetings, a mutual agreement cannot be reached between the parties, then the matter shall be referred to the Division of Administrative Hearings (DOAH) for disposition in accordance with the provisions of Chapter 120, F.S. The Licensee or the Department may request DOAH to establish an expedited schedule for processing the dispute. Any filing with DOAH shall state with particularity the specific project and geographic location to which the dispute relates. Work unrelated to the specific project and in areas other than the location to which the dispute relates will not be affected by the dispute.

B. Modifications

If written objections are filed regarding a requested modification, and the objections address only a portion of a requested modification, the Department shall issue a final order approving the portion of the modification to which no objections were filed, unless that portion of the requested modification is substantially related to or necessary to implement the portion to which written objections are filed.

C. Post-certification Submittals

If it is determined, after assessment of a post-certification submittal, that compliance with the Conditions will not be achieved for a particular portion of a submittal, the Department may make a separate assessment of other portions of the submittal, unless those portions of the submittal are substantially related to or necessary to implement that portion for which it has been determined that compliance with the Conditions will not be achieved.

[Section 120.57, F.S.; Rule 62-17.211, F.A.C.]

XII. SEVERABILITY

The provisions of this certification are severable, and if any provision of this certification or the application of any provision of this certification to any circumstance is held invalid, the remainder of the certification or the application of such provision to other circumstances shall not be affected thereby.

XIII. ENFORCEMENT

A. The terms, conditions, requirements, limitations, and restrictions set forth in these Conditions are binding and enforceable pursuant to Sections 403.141, 403.161, 403.514, 403.727, and 403.859 through 403.861, F.S., as applicable. Any noncompliance by the Licensee with these Conditions constitutes a violation of Chapter 403, F.S., and is grounds for enforcement action, which may result in license termination, license revocation, or license revision. The Licensee is placed on notice that the Department may review this certification periodically and may initiate enforcement action for any violation of these Conditions.

B. All records, notes, monitoring data, and other information relating to the construction or operation of the certified facility which are submitted to the Department may be used by the Department as evidence in any enforcement case involving the certified facility and arising under the Florida Statutes or Department rules, subject to the restrictions in Sections 403.111 and 403.73, F.S. During enforcement actions, the retention period for all records will be extended automatically unless otherwise stipulated by the Department. Such evidence shall only be used to the extent it is consistent with the Florida Rules of Civil Procedure and appropriate evidentiary rules.

C. The specific terms of the Fifth Supplemental Agreement and the Revised Plan, referenced in Section B. Condition X. Units 3 & 4 Additional Monitoring of these Conditions of Certification, shall remain enforceable by the SFWMD by the terms of the Fifth Supplemental Agreement.

[Sections 403.121, 403.131, 403.141, 403.151, 403.161, and 403.514, F.S.; Rules 62-4.160(1) and (9), F.A.C.]

XIV. REVOCATION OR SUSPENSION

This certification shall be final unless revised, revoked or suspended pursuant to law. This certification may be suspended or revoked pursuant to Sections 403.512, F.S. This certification is valid only for the specific processes and operations identified in the SCA and approved in the final order of certification or indicated in the testimony and exhibits in support of certification or approved in a subsequent amendment or modification of the certification. Any unauthorized deviation from the approved drawings, exhibits, specifications, or conditions of this approval may constitute grounds for revocation and enforcement action by the Department. Any enforcement action, including suspension and revocation, shall only affect the portion(s) of the certified facility that are the cause of such action, and other portions of the certified facility shall remain unaffected by such action.

[Sections 403.512, F.S.; Rule 62-4.160(2), F.A.C.]

XV. REGULATORY COMPLIANCE

As provided in Sections 403.087(7) and 403.722(5), F.S., except as specifically provided in the final order of certification, a subsequent modification or amendment, or these Conditions, the issuance of this License does not convey any vested rights or any exclusive privileges. Neither does it authorize any injury to public or private property or any invasion of personal rights, nor any infringement of federal, state, or local laws or regulations. This License is not a waiver of or approval of any other Department license or permit that may be required for other aspects of the certified facility that are not addressed in this License. This license does not relieve the Licensee from liability for harm or injury to human health or welfare, animal, or plant life, or public or private property caused by the construction or operation of the certified facility, or from penalties therefore.

[Rules 62-4.160(3) and (5), F.A.C.]

XVI. CIVIL AND CRIMINAL LIABILITY

Except to the extent a variance, exception, exemption, or other relief is granted in a final order of certification, in a subsequent modification to these Conditions, or as otherwise provided under Chapter 403, F.S., this certification does not relieve the Licensee from civil or

criminal penalties for noncompliance with any Condition, applicable rules or regulations of the Department, or any other state statutes or regulations which may apply.

[Sections 403.141, 403.161, and 403.511, F.S.]

XVII. USE OF STATE LANDS

A. Except as specifically provided in the final order of certification or these Conditions, the issuance of this License conveys no title to land or water, does not constitute State recognition or acknowledgment of title, and does not constitute authority for the use of submerged lands unless the necessary title or leasehold interests have been obtained from the State. Only the Trustees of the Internal Improvement Trust Fund may express State opinion as to title.

B. If any portion of the certified facility is located on sovereign submerged lands, state-owned uplands, or within an aquatic preserve, then the Licensee must comply with the applicable portions of Chapters 18-2, 18-20, and 18-21, F.A.C., and Chapters 253 and 258, F.S., except as specifically provided in the final order of certification or these Conditions. If any portion of the certified facility is located on sovereign submerged lands, the Licensee must submit section F of Form 62-330.060(1), *Application for Individual and Conceptual Approval Environmental Resource Permit* (State 404 Program Permit) *and Authorization to Use State-Owned Submerged Lands* to the Department prior to construction. If any portion of the certified facility is located on state-owned uplands, the Licensee must submit an Upland Easement Application to the Department prior to construction.

C. If a portion of the certified facility is located on sovereign submerged lands or state-owned uplands owned by the Board of Trustees of the Internal Improvement Trust Fund, pursuant to Article X, Section 11 of the Florida Constitution, then the proposed activity on such lands requires a proprietary authorization. Under such circumstances, the proposed activity is not exempt from the need to obtain a proprietary authorization. Unless otherwise provided in the final order of certification or these Conditions, the Department has the responsibility to review and take action on requests for proprietary authorization in accordance with Rule 18-2.018 or 18-21.0051, F.A.C.

D. The Licensee is hereby advised that Florida law states: "A person may not commence any excavation, construction, or other activity involving the use of sovereign or other lands of the state, the title to which is vested in the Board of Trustees of the Internal Improvement Trust Fund under this chapter, until the person has received the required lease, license, easement, or other form of consent authorizing the proposed use." Pursuant to Chapter 18-14, F.A.C., if such work is done without consent, or if a person otherwise damages state land or products of state land, the Board of Trustees may levy administrative fines of up to $10,000 per offense.

E. The terms, conditions, and provisions of any required lease or easement issued by the State shall be met. Any construction activity associated with the certified facility shall not commence on sovereign submerged lands or state-owned uplands, title to which is held by the Board of Trustees of the Internal Improvement Trust Fund, until all required lease or easement documents have been executed.

[Chapters 253 and 258, F.S.; Chapters 18-2, 18-14, 18-21, 62-340, and Rules 62-330.060(1) and 62-4.160(4), F.A.C.]

XVIII. PROCEDURAL RIGHTS

Except as specified in Chapter 403, F.S., or Chapter 62-17, F.A.C., no term or condition of certification shall be interpreted to preclude the post-certification exercise by any party of whatever procedural rights it may have under Chapter 120, F.S., including those related to rule-making proceedings.

[Sections 403.511(5)(c), F.S. and Chapter 62-17, F.A.C.]

XIX. AGENCY ADDRESSES FOR POST-CERTIFICATION SUBMITTALS AND NOTICES

Where a Condition requires post-certification submittals and/or notices to be sent to a specific agency, the following agency addresses shall be used unless the Conditions specify otherwise or unless the Licensee and the Department are notified in writing of an agency's change in address for such submittals and notices:

Florida Department of Environmental Protection
Siting Coordination Office, MS 5500
2600 Blair Stone Road
Tallahassee, Florida 32399-3000
SCO@dep.state.fl.us

Florida Department of Environmental Protection
Southeast District Office
3301 Gun Club Road MSC 7210-1
West Palm Beach, Florida 33406

Florida Department of Economic Opportunity
Bureau of Community Planning and Growth
107 East Madison Street
Tallahassee, Florida 32399-2100

Florida Fish & Wildlife Conservation Commission
Conservation Planning Services
620 South Meridian Street, MS 5B5
Tallahassee, Florida 32399-1600
ConservationPlanningServices@myfwc.com

Florida Department of Transportation
District Administration
605 Suwannee Street
Tallahassee, Florida 32399-0450

Florida Department of Agriculture and Consumer Services
Office of General Counsel
407 South Calhoun Street
Tallahassee, Florida 32399-0800

South Florida Water Management District
Office of General Counsel
3301 Gun Club Road
West Palm Beach, Florida 33406
For ROW submittals: rowpermits@sfwmd.gov

Florida Department of State
Division of Historical Resources
500 South Bronough Street
Tallahassee, Florida 32399-0250

Miami-Dade County
Office of General Counsel
111 NW 1st Street
Miami, Florida 33128

[Section 403.511, F.S.]

XX. PROFESSIONAL CERTIFICATION

To ensure protection of public health, safety, and welfare, any construction, modification, or operation of an installation which may be a source of pollution, or of a public drinking water supply, shall be in accordance with sound professional engineering practices pursuant to Chapter 471, F.S.; and all final geological papers or documents involving the practice of the profession of geology shall be in accordance with sound professional geological practices pursuant to Chapter 492, F.S. Where required by Chapter 471 or 492, F.S., applicable portions of amendment requests, petitions for modifications, post certification submittals, and supporting documents which are submitted to the Department for public record shall be signed and sealed by the professional(s) who prepared or approved them.

[Rule 62-4.050, F.A.C.]

XXI. PROCEDURES FOR POST-CERTIFICATION SUBMITTALS

A. Purpose of Submittals

Conditions which provide for the post-certification submittal of information to DEP or other agencies by the Licensee are for the purpose of facilitating the agencies' monitoring of the effects arising from the location of the certified facility and the construction and maintenance of the certified facility. This monitoring is for DEP to assure, in consultation with other agencies with applicable regulatory jurisdiction, continued compliance with these Conditions, without further agency action. A submittal of information or determination of compliance pursuant to a post-certification submittal under this Condition does not provide a point of entry for a third party.

B. Filings

All post-certification submittals of information by Licensee are to be filed with the agency or office that requires the submittal pursuant to these Conditions. The SCO shall be copied on all post-certification submittals in electronic .pdf format (unless other formats are

requested), via email to SCO@dep.state.fl.us. Each submittal shall clearly identify the Certified facility name, PA#, and the Condition number(s) (i.e. Section X, Condition XX.y.(z)) requiring the submittal. As required by Section 403.5113(2), F.S., each post-certification submittal will be reviewed by each agency with regulatory authority over the matters addressed in the submittal on an expedited and priority basis.

[Section 403.5113, F.S.; Rule 62-17.191(3), F.A.C.]

C. Completeness

DEP shall review each post-certification submittal for completeness. This review may include consultation with the other agency(ies) receiving the post-certification submittal with regulatory jurisdiction over the matter addressed in the submittal. DEP's finding of completeness shall specify the area of the certified facility affected and shall not delay further processing of the post-certification submittal for non-affected areas.

If any portion of a post-certification submittal is found to be incomplete, the Licensee shall be so notified. Failure to issue such a notice within 30 days after filing of the submittal shall constitute a finding of completeness. Subsequent findings of incompleteness, if any, shall address only the newly filed information.

[Rule 62-17.191(1)(c)2., F.A.C.]

D. Interagency Meetings

DEP may conduct an interagency meeting with other agencies that received a post-certification submittal. The purpose of such an interagency meeting shall be for the agencies with regulatory jurisdiction over the matters addressed in the post-certification submittal to discuss whether compliance with these Conditions has been provided. Failure of DEP to conduct an interagency meeting or failure of any agency to attend an interagency meeting shall not be grounds for DEP to withhold a determination of compliance with these Conditions nor to delay the timeframes for review established by these Conditions. At DEP's request, a field inspection shall be conducted with the Licensee and the agency representative in conjunction with the interagency meeting.

E. Determination of Compliance

DEP, or applicable regulatory agency in consultation with DEP, shall give written notification within 90 days, to the Licensee and the other agency(ies) to which the post-certification information was submitted of DEP's determination of whether there is demonstration of compliance with these Conditions. If it is determined that compliance with the Conditions has not been provided, the Licensee shall be notified with particularity of the deficiencies and possible corrective measures suggested. Failure to notify Licensee in writing within 90 days of receipt of a complete post-certification submittal shall constitute a determination of compliance. A post-certification compliance review may be the basis for initiating modifications to the relevant Condition or to other related Conditions.

F. Commencement of Construction

If DEP does not object within the time period specified in paragraph E., above, Licensee may begin construction pursuant to the terms of these Conditions and the subsequently submitted construction details.

G. Revisions to Design Previously Reviewed for Compliance

If revisions to site-specific designs occur after submittal, the Licensee shall submit revised plans prior to construction for review in accordance with the post-certification process specified in this Condition.

[Sections 120.569, 373.413, 373.416, 403.511, F.S.; Rules 62-17.191 and 62-17.205, F.A.C.]

XXII. POST-CERTIFICATION SUBMITTAL REQUIREMENTS SUMMARY

Within 90 days after certification, and within 90 days after any subsequent modification or certification, the Licensee shall provide the SCO a complete summary of those post-certification submittals that are identified in these Conditions when due-dates for the information required of the Licensee have been identified. A summary shall be provided as a separate document for each transmission line, if any. Such submittals shall include, but are not limited to, monitoring reports, management plans, wildlife surveys, etc. The summary shall be provided to the SCO, in a sortable spreadsheet, electronically, in the format shown below or equivalent. For subsequent modifications and certifications, a "Post-Certification Submittal Requirements Summary" shall be required only for new or altered post-certification requirements.

Condition Number	Requirement and Timeframe	Due Date	Name of Agency or Agency Subunit to whom the submittal is required to be provided

[Section 403.5113, F.S.; Rule 62-17.191(3), F.A.C.]

XXIII. POST-CERTIFICATION AMENDMENTS

If, subsequent to certification, the Licensee proposes any material change to the SCA and revisions or amendments thereto, as certified, the Licensee shall submit a written request for amendment and a description of the proposed change to the SCA to the Department. Within 30 days after the receipt of a complete request for an amendment, the Department shall determine whether the proposed change to the SCA requires a modification to the Conditions.

A. If the Department concludes that the change would not require a modification to the Conditions, the Department shall provide written notification of the approval of the proposed amendment to the Licensee, all agencies, and all other parties to the certification.

B. If the Department concludes that the change would require a modification to the Conditions, the Department shall provide written notification to the Licensee that the proposed change to the SCA requires a request for modification pursuant to Section 403.516, F.S.

[Section 403.5113, F.S.]

XXIV. MODIFICATION OF CERTIFICATION

A. Pursuant to Sections 403.516(1)(a), F.S., and Rule 62-17.211, F.A.C., the Siting Board hereby delegates the authority to the Secretary of the Department of Environmental Protection who further delegates to the Siting Office the authority to modify, after notice and receipt of no objection by a party to the certification within 45 days after notice by mail to the party's last address of record, and if no other person whose substantial interests will be affected by the modification objects in writing within 30 days of public notice.

B. The Department may modify Conditions, in accordance with Section 403.516(1)(b), F.S., which are inconsistent with the terms of any subsequent and separately issued DEP permits, permit amendments, permit modifications, or permit renewals under a federally delegated or federally approved permit program. Such modification may be made without further notice if the matter has been previously noticed under the requirements for any federally delegated or approved permit program.

C. The Secretary of the Department may modify any condition of this certification except those pertaining to a change in fuel.

D. The Secretary of the Department may modify any condition of this certification if the Secretary finds that an immediate danger to the public health, safety, or welfare requires the issuance of an immediate final order temporarily modifying these Conditions of Certification. If the Secretary elects to exercise this delegated authority, the Secretary shall prepare an immediate final order that recites with particularity the facts underlying the Secretary's finding of an immediate danger to the public health, safety, or welfare. The immediate final order and the modification to the Conditions of Certification shall be effective only for so long as is necessary to address the immediate danger and shall be applicable or enjoinable from the date rendered.

E. In accordance with Section 403.516(1)(c), F.S., the Licensee may file a petition for modification with the Department, or the Department may initiate the modification upon its own initiative.

F. Any anticipated facility expansions, production increases, or process modifications which may result in new, different or increased discharge or emission of pollutants, change in fuel, or expansion in generating capacity must be reported by submission of an appropriate request for an amendment, modification, or certification.

G. In the event of a prolonged [thirty (30) days or more] equipment malfunction or shutdown of pollution control equipment, the Secretary of the Department may allow facility operation to resume and continue to take place under an immediate final order temporarily modifying these Conditions of Certification, provided that the Licensee demonstrates that such operation will be in compliance with all applicable ambient air quality standards and PSD increments, water quality standards and rules, solid waste rules, domestic wastewater rules and industrial wastewater rules. During such malfunction or shutdown, the operation of the facility shall comply with all other requirements of this certification and all applicable state and federal emission and effluent standards not affected by the malfunction or shutdown.

H. Any anticipated facility change that results in a change to the Site Delineation Map, attached hereto as part of Attachment A, may be considered a modification, and must be accompanied by a map or aerial photograph showing the proposed new boundaries of the site. Within 120 days after completion of construction of the approved facility change, the Licensee shall provide the information required by Section A. General Conditions, Condition I. Scope, paragraphs D, E, F, G, H, or I, as appropriate.

[Section 403.516, F.S.; Rule 62-17.211, F.A.C.]

XXV. COASTAL ZONE CONSISTENCY

Pursuant to Sections 373.428 and 403.511, F.S., certification of the facility constitutes the State's concurrence that the licensed activity or use is consistent with the federally approved program under the Florida Coastal Management Act.

[Sections 373.428, 380.23, and 403.511(7), F.S.]

XXVI. WATER QUALITY CERTIFICATION

Pursuant to the Operating Agreement between the Department, Water Management Districts and U.S. Army Corps of Engineers, a written final order granting 'certification' constitutes certification by the Department that the project activities comply with applicable state water quality standards.

[2012 Operating Agreement, Jacksonville District USACOE, DEP and Water Management Districts, Section II.A.1.(f)]

XXVII. TRANSFER OF CERTIFICATION

A. This certification is transferable in whole or in part, upon Department approval, to an entity determined to be able to comply with these Conditions. A transfer of certification of all or part of the certified facility may be initiated by the Licensee's filing of a Notice of Intent to Transfer Certification with the Department's SCO. The notice of intent shall: identify the intended new certification holder or Licensee; identify the current and the new entity responsible for compliance with the certification; and include a written agreement from the intended new Licensee/Transferee to abide by all Conditions, as well as, applicable laws and regulations. Upon receiving a complete notice of intent, the transfer shall be approved by the Department unless the Department objects to the transfer on the grounds that the new Licensee will be unable to comply with the Conditions, specifies in writing its reasons for its objections, and gives notice and an opportunity to petition for an administrative hearing pursuant to Section 120.57, F.S. Upon approval, the Department will initiate a modification to the Conditions to reflect the change in ownership in accordance with Rule 62-17.211, F.A.C.

B. In the event of the dissolution of the Licensee, the Department may transfer certification to successor entities which are determined to be competent to construct, operate, and maintain the certified facility in accordance with the Conditions and which are proper applicants as defined by the PPSA. Upon determination that such a successor entity complies with the requirements for transfer of certification, the Department will initiate a modification to the Conditions to reflect the change in ownership in accordance with Rule 62-17.211, F.A.C.

[Chapter 120, F.S.; Rule 62-17.211, F.A.C.]

XXVIII. LABORATORIES AND QUALITY ASSURANCE

Chemical, physical, biological, microbiological, and toxicological data collected as a requirement of these Conditions must be reliable and collected and analyzed by scientifically sound procedures. Unless otherwise specified in these Conditions, the Licensee shall adhere to the minimum field and laboratory quality assurance, methodological and reporting requirements of the Department as set forth in Chapter 62-160, F.A.C.

[Chapter 62-160, F.A.C.]

XXIX. ENVIRONMENTAL RESOURCES

A. General

1. Submittals for Construction Activities

a. Prior to the commencement of construction of new facilities and/or new Associated facilities the Licensee shall provide to the DEP SED District for review, all information necessary for a complete *Application for Individual and Conceptual Approval Environmental Resource Permit and Authorization to Use State-Owned Lands* (ERP), DEP Form 62-330.060(1), F.A.C., or other applicable ERP authorization form. A copy of the submittal shall also be provided to the SCO.

This form may: a) be submitted concurrently with a SCA; b) be submitted as part of an amendment request or a petition for modification; or c) be submitted as a post-certification submittal following approval of a Project through certification, modification, or amendment. Such ERP submittals, once received, shall be reviewed in accordance with the non-procedural standards and criteria for issuance of an ERP, including all the provisions related to reduction and elimination of impacts, conditions for issuance, additional conditions for issuance, and mitigation contained in Chapter 62-330, F.A.C., as applicable, unless otherwise stated in these Conditions. While the information is provided for review via submittal of the ERP form, consistent with Section 403.511, F.S., a separate ERP is not required for certified facilities, and therefore, a separate ERP will not be issued.

Those forms submitted as part of a SCA, an amendment, or modification, shall be processed concurrently with the respective SCA, amendment, or modification, in compliance with the applicable PPSA procedures. Those forms submitted as a post-certification submittal (after certification, modification, or amendment and prior to construction) shall be processed in accordance with Section A. General Conditions, Condition XXI., Procedures for Post-Certification Submittals. Post-certification submittal information may be submitted for discrete portions of the certified facilities for a determination of compliance with these Conditions.

No construction shall commence on a project feature, or in a particular segment of a linear facility, until the Department has determined that there is a demonstration of compliance with these Conditions. For post-certification submittal reviews, the Department's determination is governed by Section A, General Conditions, Condition XXI, Procedures for Post-Certification Submittals.

b. Concurrent with submittal of the DEP form required in subparagraph A.1.a., above, the Licensee shall submit, as applicable, a survey of wetland and surface water areas as delineated in accordance with Chapter 62-340, F.A.C., and verified by

appropriate agency staff for Department compliance review. Available DEP-approved wetland and surface water delineations within the boundaries of a certified site or a portion thereof may be used and reproduced for this delineation submittal and verification. Formal DEP-approved wetland and surface water delineations are valid only for a period of five years.

[Section 373.416, F.S.; Chapters 62-330 and 62-340, F.A.C.]

2. Construction, operation, and maintenance of the proposed project (including any access roads and structures constructed within wetlands and other surface waters, and/or Associated facilities) shall satisfy any applicable non-procedural requirements in the Department rules.

[Section 373.414(1)(a), F.S.]

3. Any delineation of the extent of a wetland or other surface water submitted as part of the DEP ERP Application Form required by subparagraph A.1.a., above, including plans or other supporting documentation, shall not be considered binding on the Department unless a specific condition of this certification or a formal wetlands jurisdictional determination under Section 373.421(2), F.S., provides otherwise.

[Sections 373.421, 403.504, F.S.]

B. Surface Water Management Systems

1. Information regarding surface water management systems (SWMS) will be reviewed for consistency with the applicable non-procedural requirements under Part IV of Chapter 373, F.S., following submittal of Form 62-330.060(1), F.A.C., to the DEP District.

2. All construction, operation, and maintenance of the SWMS(s) for the certified facilities shall be as set forth in the plans, specifications, and performance criteria contained in the SCA and other materials presented during the certification proceeding, post-certification submittals, and as otherwise approved. If specific requirements are necessary for construction, operation, and/or maintenance of an approved SWMS, those requirements shall be incorporated into a SWMS Operation and Maintenance Requirements for that system and included in Attachment B (Surface Water Management System Requirements). Any alteration or modification to the SWMS Plan or the SWMS as certified requires prior approval from the Department.

3. To allow for stabilization of all disturbed areas, prior to construction, during construction of the SWMS, and for a period of time after construction of the SWMS, the Licensee shall implement and maintain erosion and sediment control best management practices, such as silt fences, erosion control blankets, mulch, sediment traps, polyacrylamide (PAM), temporary grass seed, permanent sod, and floating turbidity screens to retain sediment on-site and to prevent violations of state water quality standards. These devices shall be installed, used, and maintained at all locations where the possibility exists of transferring suspended solids into the receiving waterbody due to the licensed work, and shall remain in place at all locations until construction in that location is completed and soils are permanently stabilized. All best management practices shall be in accordance with the guidelines and specifications described in the *State of Florida Erosion and Sediment Control Designer and Reviewer Manual* (Florida Department of Transportation and Florida Department of Environmental Protection, by HydroDynamics Incorporated in cooperation with Stormwater Management Academy, June 2007) unless a project-specific erosion and sediment control plan is approved as part of this License. If project-specific Conditions require additional measures during any phase of

construction or operation to prevent erosion or control sediments beyond those specified in the approved erosion and sediment control plan, the Licensee shall implement additional best management practices as necessary, in accordance with the guidelines and specifications in the *State of Florida Erosion and Sediment Control Designer and Reviewer Manual*. The Licensee shall correct any erosion or shoaling that causes adverse impacts to the water resources as soon as feasible. Once project construction is complete in an area, including the re-stabilization of all side slopes, embankments, and other disturbed areas, and before conversion to the operation and maintenance phase of the SWMS, all silt screens and fences, temporary baffles, and other materials that are no longer required for erosion and sediment control shall be removed.

4. The Licensee shall complete construction of all aspects of the SWMS described in the ERP Application Form, submitted as part of a post-certification submittal, amendment, modification, or SCA including water quality treatment features, and discharge control facilities prior to use of the portion of the certified facility being served by the SWMS.

5. At least 48 hours prior to beginning the authorized activities, the Licensee shall submit to the DEP District a fully executed Form 62-330.350(1), "Construction Commencement Notice," (October 1, 2013), (http://www.flrules.org/Gateway/reference.asp?No=Ref-02505), indicating the expected start and completion dates. A copy of this form may be obtained from the Department, as described in subsection 62-330.010(5), F.A.C., and shall be submitted electronically. However, for activities involving more than one acre of construction that also require a NPDES stormwater construction general permit, submittal of the Notice of Intent to Use Generic Permit for Stormwater Discharge from Large and Small Construction Activities, DEP Form 62-621.300(4)(b), shall also serve as notice of commencement of construction and, in such a case, submittal of Form 62-330.350(1) is not required.

6. Each phase or independent portion of the approved system must be completed in accordance with the submitted DEP ERP Application Form prior to the operation of the portion of the certified facility being served by that portion or phase of the system.

7. Within 30 days, or such other date as agreed to by DEP and the Licensee, after completion of construction of any new portions of the SWMS, the Licensee shall submit to the DEP District, and copy the SCO, a written statement of completion and certification by a registered professional engineer (P.E.), or other appropriate registered professional, as authorized by law, utilizing the required "As-Built Certification and Request for Conversion to Operation Phase" (DEP Form 62-330.310(1), F.A.C.). Additionally, if deviations from the approved drawings are discovered, the As-Built Certification must be accompanied by a copy of the approved drawings with deviations noted.

8. Any substantial deviation from the approved drawings, exhibits, specifications, or Conditions, may constitute grounds for revocation or enforcement action by the Department.

9. The operation phase of any new SWMS approved by the Department shall not become effective until the Licensee has complied with the requirements of the conditions herein, the Department determines the system to be in compliance with the approved plans, and the entity approved by the Department accepts responsibility for operation and maintenance of the system.

10. The DEP District must be notified in advance of any proposed construction dewatering. If the dewatering activity is likely to result in off-site discharge or sediment transport into wetlands or surface waters, a written dewatering plan must be submitted to and approved by the Department prior to the dewatering event.

[Section 373.414, F.S.; Chapters 62-302, 62-330, and Rule 62-4.242, F.A.C.]

C. Wetland and Other Surface Water Impacts

1. All certified facilities shall be constructed in a manner which will eliminate or reduce adverse impacts to on-site and/or adjacent wetlands or other surface waters to the extent practicable or otherwise comply with the Department's substantive criteria for elimination or reduction of such impacts. When impacts to wetlands will occur as a result of a future amendment, modification, or certification, and cannot be practicably eliminated or reduced, the Licensee may propose, and the Department or Board shall consider, mitigation to offset otherwise such impacts under the ERP review process pursuant to subparagraph A.1., above.

2. Proposed mitigation requirements/plans submitted with the DEP ERP Application forms required in subparagraph A.1.a., above, or submitted as part of an amendment, modification, or certification, and that are deemed acceptable by DEP, shall include applicable construction conditions, success criteria, monitoring plans, and remedial actions (if applicable), and shall be incorporated into these Conditions as Attachment C (Wetland Mitigation Requirements/Plans).

[Sections 373.413, 373.414, 373.4145, 403.511, and 403.814(6), F.S.; Chapters 62-312, 62-330, 62-340, 62-342, and 62-345, F.A.C.]

XXX. THIRD PARTY IMPACTS

The Licensee is responsible for maintaining compliance with these Conditions even when third party activities authorized by the Licensee occur in or on the certified site.

[Sections 403.506(1), F.S.]

XXXI. FACILITY OPERATION

The Licensee shall properly operate and maintain the certified facility and systems of treatment and control (and related appurtenances) that are installed and used by the Licensee to achieve compliance with these Conditions, as required by the final order of certification, these Conditions, or a post-certification amendment or modification. This provision includes the operation of backup or auxiliary facilities or similar systems when necessary to achieve compliance with the final order of certification, these Conditions, or a post-certification amendment or modification. Further, the Licensee shall take all reasonable steps to minimize any adverse impact resulting from noncompliance with any limitation specified in this certification, including such accelerated or additional monitoring as necessary to determine the nature and impact of the noncomplying event.

[Rule 62-4.160(6), F.A.C.]

XXXII. RECORDS MAINTAINED AT THE FACILITY

A. These Conditions or a copy thereof shall be kept at the site.

B. The Licensee shall hold at the site, or other location designated by these Conditions, records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation required by these Conditions, copies of all reports required by these Conditions, and records of all data used to complete the SCA for this approval. These materials shall be retained at least 3 years from the date of the sample, measurement, report, or application unless otherwise specified by Department rule.

C. Records of monitoring information shall include:

1. the date, exact place, and time of sampling or measurements;
2. the person responsible for performing the sampling or measurements;
3. the dates analyses were performed;
4. the person responsible for performing the analyses;
5. the analytical techniques or methods used; and
6. the results of such analyses.

[Rules 62-4.160(12) and (14)(b), F.A.C.]

XXXIII. WATER DISCHARGES

A. Except as otherwise authorized by a permit issued by the Department under a federally approved or delegated program or to the extent a variance, exception, exemption or other relief is granted or authorized by these Conditions, the Licensee shall not discharge to surface or ground waters of the State, wastes in concentrations, which, alone or in combinations with other substances or components of discharges (whether thermal or non-thermal), are carcinogenic, mutagenic, or teratogenic to human beings (unless specific criteria are established for such components in Rule 62-520.400, F.A.C.) or are acutely toxic to indigenous species of significance to the aquatic community within surface waters affected by the ground water at the point of contact with surface waters.

B. Except as otherwise authorized by a permit issued by the Department under a federally approved or delegated program or to the extent a variance, exception, exemption, or other relief is granted or authorized by these Conditions, all discharges and activities must be conducted so as to not cause a violation of the water quality standards set forth in Chapters 62-4, 62-302, 62-520, 62-550, and 62-620, F.A.C., including the provisions of Rules 62-4.243, 62-4.244, and 62-4.246, F.A.C., the antidegradation provisions of Rules 62-4.242(1)(a), (1)(b), and 62-302.300, F.A.C., and any special standards for Outstanding Florida Waters and Outstanding National Resource Waters set forth in Rules 62-4.242(2) and (3), F.A.C.

C. Except as otherwise authorized by a permit issued by the Department under a federally approved or delegated program or to the extent a variance, exception, exemption, or other relief is granted or authorized by these Conditions, all dewatering discharges must be in compliance with Rule 62-621.300, F.A.C.

[Chapters 62-4, 62-302, 62-520, 62-550, 62-620, and 62-621, F.A.C.]

XXXIV. SOLID AND HAZARDOUS WASTE

A. Solid Waste

The Licensee shall comply with all applicable non-procedural provisions of Chapter 62-701, F.A.C., for any solid waste generated within the certified facility during construction, operation, maintenance, and closure.

[Chapter 62-701, F.A.C.]

B. Hazardous Waste, Used Oil, Petroleum Contact Water, and Spent Mercury

The Licensee shall comply with all applicable non-procedural provisions of Chapter 62-730, F.A.C., for any hazardous waste generated within the certified facility. An EPA identification number must be obtained before beginning hazardous waste activities unless the facility is a Very Small Quantity Generator (VSQG). VSQGs generate no more than 100 kg (220 lbs) of hazardous waste in any month.

The Licensee shall comply with all applicable non-procedural provisions of Chapter 62-710, F.A.C., for any used oil and used oil filters generated within the certified facility.

The Licensee shall comply with all applicable non-procedural provisions of Chapter 62-737, F.A.C., for any spent mercury-containing lamps and devices generated within the certified facility.

The Licensee shall comply with all applicable provisions of Chapter 62-740, F.A.C., for any petroleum contact water located within the certified facility.

[Chapters 62-710, 62-730, 62-737, and 62-740, F.A.C.]

C. Hazardous Substance Release Notification

1. Any owner or operator of a facility who has knowledge of any release of a hazardous substance from a certified facility in a quantity equal to or exceeding the reportable quantity in any 24-hour period shall notify the Department by calling the State Watch Office, (800) 320-0519, as soon as possible, but not later than one working day of discovery of the release.

2. Any owner or operator of a facility who has knowledge of any release of a hazardous substance from a certified facility in a quantity equal to or exceeding the reportable quantity in any 24-hour period shall notify the public by submitting a Public Notice of Pollution, https://prodenv.dep.state.fl.us/DepPNP/user/pnpRequest, as soon as possible, but not later than 24 hours after discovery of the release.

3. Releases of mixtures and solutions are subject to these notification requirements only where a component hazardous substance of the mixture or solution is released in a quantity equal to or greater than its reportable quantity.

4. Notification of the release of a reportable quantity of solid particles of antimony, arsenic, beryllium, cadmium, chromium, copper, lead, nickel, selenium, silver, thallium, or zinc is not required if the mean diameter of the particles released is larger than 100 micrometers (0.004 inches).

[Chapter 62-150, F.A.C.]

D. Contaminated Site Cleanup

The Licensee shall comply with all applicable non-procedural provisions of Chapter 62-780, F.A.C., for any violations of relevant provisions of Chapters 376 or 403, F.S., that result in legal responsibility for site rehabilitation pursuant to those chapters. This responsibility for site rehabilitation does not affect any activity or discharge permitted or exempted pursuant to Chapters 376 or 403, F.S., or rules promulgated pursuant to Chapters 376 or 403, F.S.

[Chapter 62-780, F.A.C.]

XXXVI. STORAGE TANK SYSTEMS

Registration, construction, installation, operation, maintenance, repair, closure, and disposal of storage tank systems within a certified site that store regulated substances shall be in accordance with Chapters 62-761 and 62-762, F.A.C., in order to minimize the occurrence and environmental risks of releases and discharges. Mineral acid storage tank systems are subject only to Rule 62-762.891, F.A.C. Compression vessels and aboveground hazardous substance storage tank systems with individual capacities greater than 110 gallons are only subject to Rule 62-762.401, F.A.C.

A. Incident Notification Requirements.

Notification of any condition or situation indicating that a release or discharge of a regulated substance may have occurred from a storage tank system or system component shall be made to the County in writing or electronic format on either Form 62-761.900 (6) or Form 62-762.901(6), whichever is applicable, Incident Notification Form (INF), within 72 hours of discovery or before the close of the County's next business day. However, an INF is not required to be submitted if, within 72 hours or discovery, the investigation of the incident confirms that a discharge did not occur.

B. Discharge Reporting Requirements

Notification of the discovery of a discharge of a regulated substance shall be made to the County in writing or electronic format on either Form 62-761.900(1) or Form 62-762.901(1), whichever is applicable, Discharge Report Form (DRF) within 24 hours of the discovery or before the close of the County's next business day, unless the discovery is a non-petroleum, de minimis discharge referenced in Rule 62-780.550, F.A.C.; the discharge was previously reported to the appropriate County or the Department on a DRF; or the discovery is a petroleum or petroleum product de minimis discharge referenced in Rule 62-780.560(1), F.A.C. A de minimis discharge is exempt from the notification requirements as long as discharge is removed and properly treated or properly disposed, or otherwise remediated pursuant to the applicable provisions of Chapter 62-780, F.A.C.

C. Discharge Cleanup

If a discharge of a regulated substance occurs at the certified facility, actions shall be taken immediately to contain, remove, and abate the discharge under all applicable Department rules. The Licensee is advised that other federal, state, or local requirements may apply to these activities. If the contamination present is subject to the provisions of Chapter 62-780, F.A.C., corrective action, including free product recovery, shall be performed in accordance with that Chapter.

D. Out of Service and Closure Requirements

Storage tank systems shall be taken out-of-service and/or closed as necessary in accordance with Rules 62-761.800, 62-762.801, and 62-762.802, F.A.C., as applicable.

[Chapters 62-761, 62-762, and 62-780, F.A.C.]